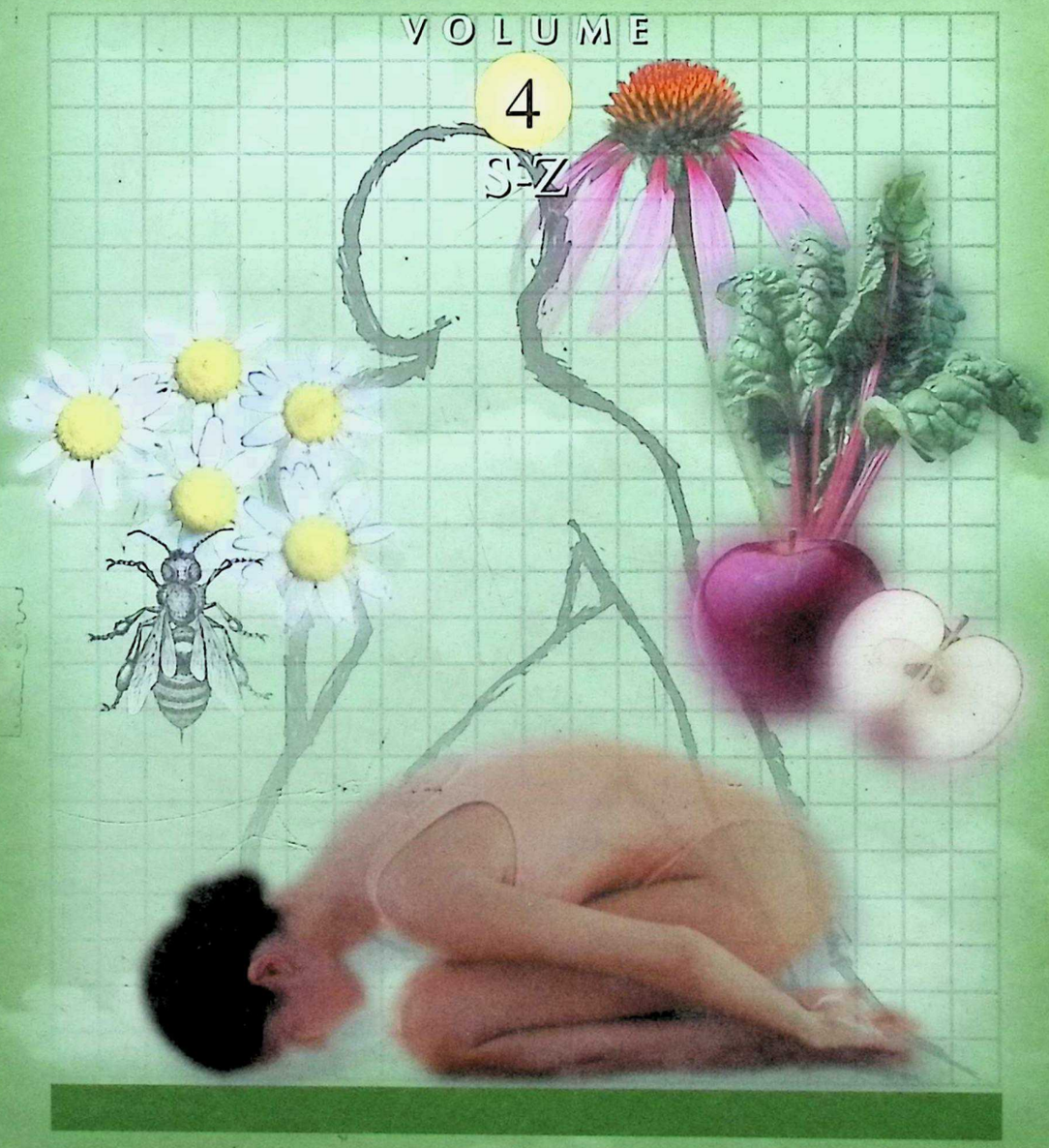
Digitized by Arya Samaj Foundation Chennai and eGangotri

The GALE ENCYCLOPEDIA of ALTERNATIVE MEDICINE

THIRD EDITION

VOLUME 4

S-Z



CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

by Arya Samaj Foundation Chennai

GALE

The GALE ENCYCLOPEDIA of ALTERNATIVE MEDICINE

THIRD EDITION

VOLUME

R
615.503
FUN-T:
V.4

615.503
FUN-T

GALE
CENGAGE Learning

Public Domain. Gurukul Kangri Collection

Digitized by Arya Samaj Foundation Chennai and eGangotri

R
615.503
FUN-T

144267

पुस्तकालय
गुरुकुल काँगड़ी विश्वविद्यालय, हरिद्वार
615.503
विषय संख्या FUN-T R आगत नं० 144267
लेखक Fundukian, Laurie T.
शीर्षक The gale encyclopedia of alternative Medicine

दिनांक	सदस्य संख्या	दिनांक	सदस्य संख्या

गुरुकुल काँगड़ी विश्वविद्यालय, हरिद्वार
कृपया पुस्तक के ऊपर कोई निशान आदि न लगायें।

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Reserved for Departmental Library

पुस्तकालय
गुरुकुल काँगड़ी विश्वविद्यालय, हरिद्वार

615.503
R
वर्ग संख्या FUN-T
आगत संख्या 144267

पुस्तक विवरण की तिथि नीचे अंकित है। इस तिथि सहित ३० वें दिन यह पुस्तक पुस्तकालय में वापस आ जानी चाहिए अन्यथा ५० पैसे प्रतिदिन के हिसाब से विलम्ब दण्ड लगेगा।

Stock Verification 2024
144267

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

The GALE ENCYCLOPEDIA of ALTERNATIVE MEDICINE

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

The GALE ENCYCLOPEDIA of ALTERNATIVE MEDICINE

THIRD EDITION

VOLUME

4

S–Z
ORGANIZATIONS
GLOSSARY
INDEX

LAURIE J. FUNDUKIAN, EDITOR

144267

144267

GALE
CENGAGE Learning

Detroit • New York • San Francisco • New Haven, Conn • Waterville, Maine • London

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

GALE
CENGAGE Learning™

Gale Encyclopedia of Alternative Medicine, Third Edition

Project Editor: Laurie J. Fundukian

Editorial: Donna Batten, Amy Kwolek, Brigham Narins, Jeffrey Wilson

Product Manager: Kate Hanley

Editorial Support Services: Andrea Lopeman

Indexing Services: Factiva, a Dow Jones Company

Rights Acquisition and Management: Robyn V. Young

Composition: Evi Abou-El-Seoud, Mary Beth Trimper

Manufacturing: Wendy Blurton, Dorothy Maki

Imaging: Lezlie Light

Product Design: Pam Galbreath

© 2009 Gale, Cengage Learning

ALL RIGHTS RESERVED. No part of this work covered by the copyright herein may be reproduced, transmitted, stored, or used in any form or by any means graphic, electronic, or mechanical, including but not limited to photocopying, recording, scanning, digitizing, taping, Web distribution, information networks, or information storage and retrieval systems, except as permitted under Section 107 or 108 of the 1976 United States Copyright Act, without the prior written permission of the publisher.

For product information and technology assistance, contact us at
Gale Customer Support, 1-800-877-4253.
For permission to use material from this text or product,
submit all requests online at **www.cengage.com/permissions.**
Further permissions questions can be emailed to
permissionrequest@cengage.com

While every effort has been made to ensure the reliability of the information presented in this publication, Gale, a part of Cengage Learning, does not guarantee the accuracy of the data contained herein. Gale accepts no payment for listing; and inclusion in the publication of any organization, agency, institution, publication, service, or individual does not imply endorsement of the editors or publisher. Errors brought to the attention of the publisher and verified to the satisfaction of the publisher will be corrected in future editions.

Library of Congress Cataloging-in-Publication Data

The Gale encyclopedia of alternative medicine, 3rd ed. / edited by Laurie J. Fundukian, editor.
p. cm. --
Includes bibliographical references and index.
ISBN 978-1-4144-4872-5 (set) -- ISBN 978-1-4144-4873-2 (vol. 1) -- ISBN 978-1-4144-4874-9 (vol. 2) -- ISBN 978-1-4144-4875-6 (vol. 3) -- ISBN 978-1-4144-4876-3 (vol. 4)
1. Alternative medicine--Encyclopedias. I. Fundukian, Laurie J. II. Title: Encyclopedia of alternative medicine.
[DNLM: 1. Complementary Therapies--Encyclopedias--English. 2. Internal Medicine--Encyclopedias--English. WB 13 G1508 2009]

R733.G34 2009
615.5'03--dc22 2008016097

Gale
27500 Drake Rd.
Farmington Hills, MI, 48331-3535

ISBN-13: 978-1-4144-4872-5 (set)
ISBN-13: 978-1-4144-4873-2 (vol. 1)
ISBN-13: 978-1-4144-4874-9 (vol. 2)
ISBN-13: 978-1-4144-4875-6 (vol. 3)
ISBN-13: 978-1-4144-4876-3 (vol. 4)

ISBN-10: 1-4144-4872-4 (set)
ISBN-10: 1-4144-4873-2 (vol. 1)
ISBN-10: 1-4144-4874-0 (vol. 2)
ISBN-10: 1-4144-4875-9 (vol. 3)
ISBN-10: 1-4144-4876-7 (vol. 4)

This title is also available as an e-book.
ISBN-13: 978-1-4144-4877-0 ISBN-10: 1-4144-4877-5
Contact your Gale, a part of Cengage Learning sales representative for ordering information.

R
615.503
FUN-T

Printed in China
1 2 3 4 5 6 7 12 11 10 09 08

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

CONTENTS

List of Entries vii
Introduction xvii
Advisory Board xix
Contributors xxi
Entries
Volume 1: A-C 1
Volume 2: D-K 653
Volume 3: L-R 1295
Volume 4: S-Z 1963
Organizations 2427
Glossary 2443
General Index 2517

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

LIST OF ENTRIES

A

Abscess
Acidophilus
Acne
Aconite
Acupressure
Acupuncture
Ademetionine
Adie's pupil
African pygeum
Agastache
Aging
AIDS
Alcoholism
Alexander technique
Alfalfa
Alisma
Allergies
Allium cepa
Aloe
Alpha-hydroxy
Alzheimer's disease
Amenorrhea
Amino acids
Andrographis
Androstenedione
Anemarrhena
Anemia
Angelica root
Angina
Anise
Ankylosing spondylitis
Anorexia nervosa
Anthroposophical medicine
Anti-inflammatory diet
Antioxidants
Anxiety
Apis
Apitherapy
Apple cider vinegar
Applied kinesiology
Apricot seed
Arginine
Arka
Arnica
Aromatherapy
Arrowroot
Arsenicum album
Artichoke
Art therapy
Ashwaganda
Asthma
Astigmatism
Aston-Patterning
Astragalus
Atherosclerosis
Athlete's foot
Atkins diet
Atractylodes (white)
Attention-deficit hyperactivity disorder
Aucklandia
Auditory integration training
Aura therapy
Auriculotherapy
Autism
Ayurvedic medicine

B

Bach flower essences
Bad breath
Balm of Gilead
Barberry
Barley grass
Bates method
Bayberry
Bedsores
Bedwetting
Bee pollen
Behavioral therapy
Behavioral optometry
Belladonna
Beta-hydroxy
Beta-methylbutyric acid
Beta carotene
Betaine hydrochloride
Bhakti yoga
Bilberry
Binge eating disorder
Biofeedback
Bioflavonoids
Bioidentical hormone therapy
Biota
Biotherapeutic drainage
Biotin
Bipolar disorder
Bird flu
Bites and stings
Bitter melon
Bitters
Black cohosh

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Black currant seed oil
Black haw
Black walnut
Black cumin seed extract
Bladder infection
Bladder cancer
Bladderwrack
Blessed thistle
Blisters
Blood poisoning
Blood clots
Bloodroot
Blue cohosh
Body odor
Boils
Bone spurs
Bonemeal
Boneset
Borage oil
Boron
Boswellia
Botanical medicine
Breast cancer
Breastfeeding problems
Breath therapy
Breema
Brewer's yeast
Bromelain
Bronchitis
Bruises
Bruxism
Bryonia
Buchu
Buckthorn
Bugleweed
Bulimia nervosa
Bunions
Burdock root
Burns
Bursitis
Butcher's broom
Buteyko

C

Cadmium poisoning
Caffeine
Calcarea carbonica
Calcium
Calendula
Cancer treatments, biological
Cancer
Candidiasis
Canker sores
Cantharis
Carnitine
Carotenoids
Carpal tunnel syndrome
Cartilage supplements
Castor oil
Cat's claw
Cataracts
Catnip
Cayce systems
Cayenne
Celiac disease
Cell therapy
Cell salt therapy
Cellulite
Cerebral vascular insufficiency
Cerebral palsy
Cervical dysplasia
Chakra balancing
Chamomile
Charcoal, activated
Chasteberry tree
Chelated minerals
Chelation therapy
Chelidonium
Chemical poisoning
Cherry bark
Chickenpox
Chickweed
Chicory
Childbirth
Childhood nutrition
Chills
Chinese massage
Chinese system of food cures
Chinese thoroughwax
Chinese yam
Chinese foxglove root
Chiropractic
Chlamydia
Chlorella
Cholesterol
Choline
Chondroitin
Christian Science healing
Chromium
Chronic fatigue syndrome
Chrysanthemum flower
Chymotrypsin
Cicada
Cinnamon bark
Cirrhosis
Club moss
Cnidium seeds
Codonopsis root
Coenzyme Q10
Coix
Colchicum
Cold sores
Coleus
Colic
Colitis
Colloidal silver
Colonic irrigation
Color therapy
Colorectal cancer
Colostrum
Coltsfoot
Comfrey
Common cold
Conjunctivitis
Constipation
Contact dermatitis
Copper
Coptis
Cordyceps
Corns and calluses
Cornsilk
Cornus
Corydalis
Cotton root bark
Cough
Cradle cap
Cramp bark
Cranberry
Craniosacral therapy

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Creatine
Crohn's disease
Croup
Crystal healing
Cupping
Curanderismo
Curcumin
Cuscuta
Cuts and scratches
Cymatic therapy
Cyperus

D

Damiana
Dance therapy
Dandelion
Dandruff
Deglycyrrhizanated licorice
Dementia
Depression
Dermatitis
Detoxification
Devil's claw
DHEA
Diabetes mellitus
Diamond diet
Diaper rash
Diarrhea
Diathermy
Diets
Digestive enzymes
Digitalis
Diverticulitis
Dizziness
Dolomite
Dong quai
Dry mouth
Dysbiosis
Dyslexia
Dysmenorrhea

E

Ear infection
Earache
Echinacea
Eczema
Edema
Elder
Electroacupuncture
Elimination diet
Emphysema
Endometriosis
Energy medicine
Environmental therapy
Enzyme therapy
Ephedra
Epididymitis
Epilepsy
Epimedium
Escharotic treatment
Essential fatty acids
Essential oils
Essiac tea
Eucalyptus
Eucommia bark
Eupatorium
Euphrasia
Evening primrose oil
Evodia fruit
Exercise
Eyebright

F

Facial massage
Fasting
Fatigue
Feldenkrais
Feng shui
Fennel
Fenugreek
Ferrum phosphoricum
Fever
Feverfew
Fibrocystic breast disease
Fibromyalgia
Fish oil
5-HTP
Flaxseed
Flower remedies
Fo ti
Folic acid
Food poisoning
Foxglove
Fractures
French green clay
Fritillaria
Frostbite and frostnip
Fructooligosaccharides
Fungal infections

G

Gallstones
Gamma-linoleic acid
Gangrene
Ganoderma
Garcinia
Gardenia
Garlic
Gas
Gastritis
Gastrodia
Gastroenteritis
Gelsemium
Genital herpes
Genital warts
Gentiana
Geriatric massage
Gerson therapy
Ginger
Ginkgo biloba
Ginseng, Siberian
Ginseng, American
Ginseng, Korean
Glaucoma
Glucosamine
Glutamine
Glutathione
Goldenrod
Goldenseal
Gonorrhea
Gotu kola
Gout
Grains-of-paradise fruit
Grape skin
Grape seed extract
Grapefruit seed extract

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Green tea
Guggul
Guided imagery
Gulf War syndrome
Gum disease
Gymnema

H

Hair loss
Hangover
Hashimoto's thyroiditis
Hatha yoga
Hawthorn
Hay fever
Headache
Hearing loss
Heart disease
Heart attack
Heartburn
Heavy metal poisoning
Heel spurs
Hellerwork
Hemorrhoids
Hepar sulphuris
Hepatitis
Herbal cold remedies
Herbalism, traditional Chinese
Herbalism, Western
Herniated disk
Hesperidin
Hiatal hernia
Hibiscus
Hiccups
High-fiber diet
High sensitivity C reactive protein test
Hives
Hodgkin's disease
Holistic medicine
Holistic dentistry
Homeopathy
Homeopathy, acute prescribing
Homeopathy, constitutional prescribing
Honeysuckle
Hoodia gordonii
Hops
Horehound
Horse chestnut
Horsetail
Hot flashes
Hoxsey formula
Humor therapy
Huna
Hydrotherapy
Hypercortisolemia
Hyperopia
Hyperparathyroidism
Hypertension
Hyperthermia
Hyperthyroidism
Hypnotherapy
Hypoglycemia
Hypothyroidism
Hyssop

I

Iceland moss
Ignatia
Immuno-augmentation therapy
Impetigo
Impotence
Indigestion
Infant massage
Infections
Infertility
Inflammatory bowel disease
Influenza
Ingrown nail
Inositol
Insomnia
Insulin resistance
Interstitial cystitis
Iodine
Ipecac
Ipriflavone
Iridology
Iron
Irritable bowel syndrome
Ischemia
Itching

J

Jamaica dogwood
Jaundice
Jet lag
Jock itch
Jojoba oil
Journal therapy
Juice therapies
Juniper
Juvenile rheumatoid arthritis

K

Kali bichromicum
Kampo medicine
Kaposi's sarcoma
Kava kava
Kegel exercises
Kelley-Gonzalez diet
Kelp
Khella
Kidney stones
Kidney infections
Kirlian photography
Knee pain
Kneipp wellness
Kola nut
Kombucha
Kudzu

L

Labyrinth walking
Lachesis
Lactobaccilus species
Lacto-ovo vegetarianism
Laryngitis
Lavender
Lazy eye
Lead poisoning
Learning disorders
Lecithin
Ledum
Lemon balm
Lemongrass

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Leukemia
Lice infestation
Licorice
Light therapy
Linoleic acid
Lipase
Livingston-Wheeler therapy
Lobelia
Lomatium
Lomilomi
Lou Gehrig's disease
Low back pain
Lung cancer
Lutein
Lycium fruit
Lycopene
Lycopodium
Lycopus
Lyme disease
Lymphatic drainage
Lysimachia
Lysine

M

Macrobiotic diet
Macular degeneration
Magnesium
Magnetic therapy
Magnolia
Maitake
Malaria
Malignant lymphoma
Manganese
Mangosteen
Manuka honey
Marijuana
Marsh mallow
Martial arts
Massage therapy
McDougall diet
Measles
Meditation
Mediterranean diet
Medium-chain triglycerides
Melatonin
Memory loss
Méniére's disease
Meningitis
Menopause
Menstruation
Mercurius vivus
Mesoglycan
Metabolic therapies
Methionine
Mexican yam
Migraine headache
Milk thistle
Mind/Body medicine
Mistletoe
Mononucleosis
Morning sickness
Motherwort
Motion sickness
Movement therapy
Moxibustion
MSM
Mugwort leaf
Mullein
Multiple chemical sensitivity
Multiple sclerosis
Mumps
Muscle spasms and cramps
Music therapy
Myopia
Myotherapy
Myrrh

N

Narcolepsy
Native American medicine
Natrum muriaticum
Natural hygiene diet
Natural hormone replacement therapy
Naturopathic medicine
Nausea
Neck pain
Neem
Nettle
Neural therapy
Neuralgia
Neurolinguistic programming
Niacin
Night blindness
Noni
Nosebleeds
Notoginseng root
Nutmeg
Nutrition
Nux vomica

O

Oak
Obesity
Obsessive-compulsive disorder
Omega-3 fatty acids
Omega-6 fatty acids
Ophiopogon
Oregano essential oil
Ornish diet
Ortho-bionomy
Orthomolecular medicine
Osha
Osteoarthritis
Osteopathy
Osteoporosis
Ovarian cancer
Ovarian cysts
Oxygen/Ozone therapy

P

Pain
Paleolithic diet
Panchakarma
Pancreatitis
Panic disorder
Pantothenic acid
Parasitic infections
Parkinson's disease
Parsley
Passionflower
Past-life therapy
Pau d'arco
Pelvic inflammatory disease

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Pennyroyal
Peppermint
Peripheral neuropathy
Periwinkle
Pet therapy
Phlebitis
Phobias
Phosphorus
Phytolacca
Pilates
Pinched nerve
Pine bark extract
Pinellia
Pityriasis rosea
Placebo effect
Plantain
Pleurisy
Pneumonia
Polarity therapy
Polycystic ovary syndrome
Post-traumatic stress disorder
Postpartum depression
Potassium
Pranic healing
Prayer and spirituality
Pregnancy
Pregnancy massage
Premenstrual syndrome
Prickly pear cactus
Prickly heat
Prince's pine
Pritikin diet
Probiotics
Prolotherapy
Prostate enlargement
Prostate cancer
Psoriasis
Psychoneuroimmunology
Psychophysiology
Psychosomatic medicine
Psychotherapy
Psyllium
Pulsatilla
Pulse diagnosis
Pygeum
Pyridoxine

Q

Qigong
Quan yin
Quercetin

R

Rabies
Radiation injuries
Radiesthesia
Radionics
Rashes
Raspberry
Raynaud's syndrome
Red clover
Red cedar
Red yeast rice extract
Reflexology
Reiki
Reishi mushroom
Relaxation
Rescue remedy
Resveretrol
Restless leg syndrome
Retinal detachment
Retinopathy
Rheumatic fever
Rheumatoid arthritis
Rhinitis
Rhodiola rosea
Rhubarb root
Rhus toxicodendron
Riboflavin
Rolfing
Rosacea
Rose hip
Rosemary
Rosen method
Royal jelly
Rubella
Rubenfeld synergy
Russian massage
Ruta

S

Sacchromyces boulardi
Safflower flower
Saffron
Sage
Saliva sample testing
Sargassum seaweed
Sassafras
Saw palmetto
Scabies
Scallion
Scarlet fever
Schisandra
Schizophrenia
Sciatica
Scoliosis
Seasonal affective disorder
Selenium
Senior nutrition
Senna
Sensory deprivation
Sensory integration disorder
Sepia
Sesame oil
Sexual dysfunction
Shamanism
Sheep sorrel
Shepherds purse
Shiatsu
Shiitake mushroom
Shin splints
Shingles
Shintaido
Sick building syndrome
Sickle cell anemia
Silica
Sinus infection
Sjögren's syndrome
Skin cancer
Skullcap
Sleep apnea
Sleep disorders
Slippery elm
Smoking
Sneezing
Snoring

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Sodium
Somatics
Sore throat
Sound therapy
South Beach diet
Soy protein
Spearmint
Spinal manipulative therapy
Spirulina
Sports massage
Sprains and strains
Squawvine
St. John's wort
Staphylococcal infections
Stevia
Sties
Stomachaches
Stone massage
Strep throat
Stress
Stroke
Substance abuse and dependence
Sulfur
Suma
Sun's soup
Sunburn
Swedish massage
Sweet clover
Swimmer's ear
Syntonic optometry
Syphilis
Systemic lupus erythematoses

T

T'ai chi
Tangerine peel
Tea tree oil
Teenage nutrition
Teething problems
Temporomandibular joint syndrome
Tendinitis
Tennis elbow
Tetanus
Thai massage
Theanine
Therapeutic touch
Thermography
Thiamine
Thuja
Thunder God vine
Thyme
Tibetan medicine
Tinnitus
Tonsillitis
Toothache
Tourette syndrome
Toxic shock syndrome
Traditional African medicine
Traditional Chinese medicine
Trager psychophysical integration
Tremors
Trepanation
Trichomoniasis
Trigger point therapy
Triphala
Tuberculosis
Turmeric

U

Ulcers, digestive
Unani-tibbi
Urinary incontinence
Urine therapy
Usnea
Uterine cancer
Uterine fibroids
Uva ursi

V

Vaginitis
Valerian
Vanadium
Varicose veins
Veganism
Vegetarianism
Venom immunotherapy
Vitamin B complex
Vitamin A
Vitamin B_{12}
Vitamin C
Vitamin D
Vitamin E
Vitamin K
Vomiting

W

Warts
Wasabi
Wheat grass therapy
Wheat germ
Wheezing
White peony root
White willow
Whooping cough
Wigmore diet
Wild cherry
Wild oat
Wild yam
Wintergreen
Witch hazel
Worms
Wormwood
Wounds

Y

Yarrow
Yeast infection
Yellow dock
Yerba santa
Yoga
Yohimbe
Yucca

Z

Zinc
Zone diet

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

PLEASE READ—IMPORTANT INFORMATION

The Gale Encyclopedia of Alternative Medicine is a medical reference product designed to inform and educate readers about a wide variety of complementary therapies and herbal remedies and treatments for prevalent conditions and diseases. Gale believes the product to be comprehensive, but not necessarily definitive. It is intended to supplement, not replace, consultation with a physician or other healthcare practitioner. While Gale has made substantial efforts to provide information that is accurate, comprehensive, and up-to-date, Gale makes no representations or warranties of any kind, including without limitation, warranties of merchantability or fitness for a particular purpose, nor does it guarantee the accuracy, comprehensiveness, or timeliness of the information contained in this product. Readers should be aware that the universe of complementary medical knowledge is constantly growing and changing, and that differences of medical opinion exist among authorities. They are also advised to seek professional diagnosis and treatment for any medical condition, and to discuss information obtained from this book with their healthcare provider.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

INTRODUCTION

The Gale Encyclopedia of Alternative Medicine (GEAM) is a one-stop source for alternative medical information that covers complementary therapies, herbs and remedies, and common medical diseases and conditions. It avoids medical jargon when possible, making it easier for the layperson to use. *The Gale Encyclopedia of Alternative Medicine* presents authoritative, balanced information and is more comprehensive than single-volume family medical guides.

Scope

More than 800 full-length articles are included in *The Gale Encyclopedia of Alternative Medicine*. Many prominent figures are highlighted as sidebar biographies that accompany the therapy entries. Articles follow a standardized format that provides information at a glance. Rubrics include:

Therapies

- Origins
- Benefits
- Description
- Preparations
- Precautions
- Side effects
- Research and general acceptance
- Resources
- Key terms

Herbs/remedies

- General use
- Preparations
- Precautions
- Side effects
- Interactions
- Resources
- Key terms

Diseases/conditions

- Definition
- Description
- Causes and symptoms
- Diagnosis
- Treatment
- Allopathic treatment
- Expected results
- Prevention
- Resources
- Key terms

Inclusion criteria

A preliminary list of therapies, herbs, remedies, diseases, and conditions was compiled from a wide variety of sources, including professional medical guides and textbooks, as well as consumer guides and encyclopedias. The advisory board, made up of three medical and alternative healthcare experts, evaluated the topics and made suggestions for inclusion. Final selection of topics to include was made by the medical advisors in conjunction with Gale editors.

About the Contributors

The essays were compiled by experienced medical writers, including alternative healthcare practitioners and educators, pharmacists, nurses, and other complementary healthcare professionals. *GEAM* medical advisors reviewed more than 95% of the completed essays to insure that they are appropriate, up-to-date, and medically accurate.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

How to Use this Book

The Gale Encyclopedia of Alternative Medicine has been designed with ready reference in mind:

- Straight **alphabetical arrangement** allows users to locate information quickly.
- Bold faced terms function as *print hyperlinks* that point the reader to related entries in the encyclopedia.
- A list of **key terms** is provided where appropriate to define unfamiliar words or concepts used within the context of the essay. Additional terms may be found in the **glossary**.
- **Cross-references** placed throughout the encyclopedia direct readers to where information on subjects without their own entries can be found. Synonyms are also cross-referenced.
- A **Resources section** directs users to sources of further complementary medical information.
- An appendix of alternative medical organizations is arranged by type of therapy and includes valuable **contact information**.
- A comprehensive **general index** allows users to easily target detailed aspects of any topic, including Latin names.

Graphics

The Gale Encyclopedia of Alternative Medicine is enhanced with more than 400 images, including photos, tables, and customized line drawings.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

ADVISORS

An advisory board made up of prominent individuals from complementary medical communities provided invaluable assistance in the formulation of this encyclopedia. They defined the scope of coverage and reviewed individual entries for accuracy and accessibility. We would therefore like to express our appreciation to them:

Mirka Knaster, PhD
author, editor, consultant in Eastern and Western body-mind disciplines and spiritual traditions
Oakland, CA

Diana Quinn, ND
Naturopathic Women's Healthcare, Ann Arbor, MI
Ann Arbor, MI

Suzanna M. Zick, ND, MPH
University of Michigan Department of Family Medicine
Ann Arbor, MI

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

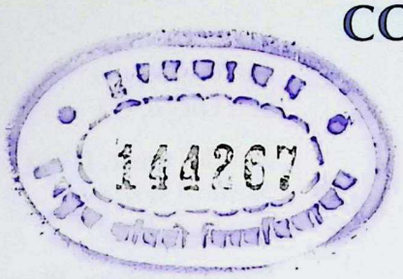
Digitized by Arya Samaj Foundation Chennai and eGangotri

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

615.503
FUN-T

CONTRIBUTORS



Margaret Alic, PhD
Medical Writer
Eastsound, WA

Greg Annussek
Medical Writer
American Society of Journalists and Authors
New York, NY

Barbara Boughton
Health and Medical Writer
El Cerrito, CA

Ruth Ann Prag Carter
Freelance Writer
Farmington Hills, MI

Linda Chrisman
Massage Therapist and Educator
Medical Writer
Oakland, CA

Rhonda Cloos, RN
Medical writer and Nurse
Austin, TX

Gloria Cooksey, CNE
Medical Writer
Sacramento, CA

Amy Cooper, MA, MSI
Medical Writer
Vermillion, SD

Angela Costello
Medical Writer
Northfield, OH

Sharon Crawford
Writer, Editor, Researcher
American Medical Writers Association
Periodical Writers Association of Canada and the Editors' Association of Canada
Toronto, ONT Canada

Sandra Bain Cushman
Massage Therapist
Alexander Technique Practitioner and Educator
Charlottesville, VA

Helen Davidson
Medical Writer
Portland, OR

Tish Davidson, MA
Medical Writer
Fremont, CA

Lori DeMilto, MJ
Medical Writer
Sicklerville, NJ

Doug Dupler, MA
Medical Writer
Boulder, CO

Paula Ford-Martin, PhD
Medical Writer
Warwick, RI

Rebecca J. Frey, PhD
Medical Writer
New Haven, CT

Lisa Frick
Medical Writer
Columbia, MO

Kathleen Goss
Medical Writer
Darwin, CA

Elliot Greene, MA
Former President, American Massage Therapy Association
Massage Therapist
Silver Spring, MD

Peter Gregutt
Medical Writer
Asheville, NC

Clare Hanrahan
Medical Writer
Asheville, NC

David Helwig
Medical Writer
London, ONT Canada

Beth A. Kapes
Medical Writer, Editor
Bay Village, OH

Katherine Kim
Medical Writer
Oakland, CA

Erika Lenz
Medical Writer
Lafayette, CO

Lorraine Lica, PhD
Medical Writer
San Diego, CA

Whitney Lowe, LMT
Massage Therapy Educator
Orthopedic Massage Education & Research Institute
Bend, OR

Mary McNulty
Freelance Writer
St.Charles, IL

Leslie Mertz
Medical Writer, Biologist
Kalkaska, MI

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Katherine E. Nelson, ND
Naturopathic Physician
Naples, FL

David E. Newton, Ed.D.
Medical Writer
Ashland, OR

Teresa Odle
Medical Writer
Ute Park, NM

Jodi Ohlsen Read
Medical Writer
Carver, MN

Carole Osborne-Sheets
Massage Therapist and Educator
Medical Writer
Poway, CA

Lee Ann Paradise
Medical Writer
Lubbock, TX

Patience Paradox
Medical Writer
Bainbridge Island, WA

Belinda Rowland, PhD
Medical Writer
Voorheesville, NY

Joan M. Schonbeck, RN
Medical Writer
Marlborough, MA

Gabriele Schubert, MS
Medical Writer
San Diego, CA

Kim Sharp, M Ln
Medical Writer
Houston, TX

Kathy Shepard Stolley, PhD
Medical Writer
Virginia Beach, VA

Judith Sims, MS
Science Writer
Logan, UT

Patricia Skinner
Medical Writer
Amman, Jordan

Genevieve Slomski, PhD
Medical Writer
New Britain, CT

Jane E. Spear
Medical Writer
Canton, OH

Liz Swain
Medical Writer
San Diego, CA

Judith Turner, DVM
Medical Writer
Sandy, UT

Samuel Uretsky, PharmD
Medical Writer
Wantagh, NY

Ken R. Wells
Science Writer
Laguna Hills, CA

Angela Woodward
Science Writer
Madison, WI

Kathleen Wright, RN
Medical Writer
Delmar, DE

Jennifer L. Wurges
Medical Writer
Rochester Hills, MI

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

S

Saccharomyces boulardii

Description

Saccharomyces boulardii is a live strain of nonpathogenic yeast. It is a subtype of the species *Saccharomyces cerevisiae* also known as baker's yeast or **brewer's yeast**, although it has different metabolic, physiologic, taxonomic, and genetic properties.

S. boulardii is categorized as a probiotic, or a microorganism that has beneficial properties for the host when ingested. *S. boulardii* has been patented for use in a lyophilized form as a human probiotic agent.

When consumed, *S. boulardii* aids digestion by maintaining the normal balance of healthy intestinal yeast and microflora in the colon. Colonic microflora promote gastrointestinal health by digesting lactose to acidify the digestive tract with lactic acid; aiding the digestion of protein to free **amino acids**; enhancing the digestion and absorption of numerous nutrients; protecting the body from an overgrowth of harmful bacteria and yeast such as *Candida*; and boosting the immune system by reducing the activity of potentially harmful or cancer-promoting toxins and bacterial enzymes.

S. boulardii is largely resistant to acidity, passes through the digestive tract to the colon, and is excreted in the stool in three to five days.

General use

S. boulardii is primarily used to treat or prevent acute **diarrhea** (including traveler's diarrhea) and antibiotic-induced diarrhea (including *Clostridium difficile*) in children and adults. It has also been used to manage bloating and **gas** associated with diarrhea.

Several studies conducted in adults have shown a wide variety of other digestive health benefits associated with *S. boulardii*. It has been used for the treatment of symptoms associated with gastrointestinal disorders such as ulcerative **colitis**, urinary tract **infections**, **irritable bowel syndrome**, and inflammatory bowel diseases, including **Crohn's disease**.

Results from a 2005 study published in the *European Journal of Gastroenterology & Hepatology* showed that 250 mg of *S. boulardii*, taken three times daily for four weeks during maintenance treatment with the drug mesalazine, resulted in confirmed clinical remission of colitis in 70 percent of participating patients.

Several pediatric studies have proven the effectiveness of *S. boulardii* for the treatment and prevention of diarrhea, as well as the prevention of cow milk-induced food allergy in infants and young children. *S. boulardii* has been particularly beneficial in reducing the incidence of antibiotic-associated diarrhea in children. A 2006 meta-analysis published in the *Journal of Pediatrics* evaluated the results of six placebo-controlled, randomized trials of antibiotic-associated diarrhea and **probiotics**. Compared to placebo, children treated with probiotics reduced the risk of antibiotic-associated diarrhea from 28.5% to 11.9%.

Other published health benefits of *S. boulardii* in infants and children include reduced incidence of upper respiratory infections. As more clinical data are published about the beneficial effects of *S. boulardii*, additional scientific evidence will be available to support health-risk reduction claims.

Preparations

S. boulardii is available in capsule and powder form. Capsules may be preferred because the powder forms generally have a shorter shelf life.

S. boulardii can be taken with or without food. The product label provides instructions on how to take it, which may include swallowing the capsule whole, sprinkling the contents of the capsule on food, or mixing the powder with liquid or semi-soft foods such as applesauce or yogurt. The daily dosage on the product label should not be exceeded. The specific storage instructions on the

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

product label should be followed. In general, *S. boulardii* should be stored at room temperature, away from moisture. Some *S. boulardii* supplements may need to be refrigerated.

Even though *S. boulardii* is largely resistant to gastric acidity, some of the yeast's health benefits may be dependant on its viability once consumed, since environmental gastric conditions can somewhat hinder its delivery to the intestines. Enteric-coated tablets and microencapsulation have been investigated as delivery options to protect the yeast from degradation due to microorganisms in the gastrointestinal tract. A January 2008 study published in *Pharmaceutical Research* found that microencapsulation of *S. boulardii* enabled the release of a higher percentage of viable yeasts. Other delivery methods have also been investigated, including aqueous suspension and freeze-dried forms of *S. boulardii* in microsphere preparations.

The appropriate dose of *S. boulardii* to yield maximum positive health benefits varies by manufacturer. The dose is also dependant on the intended therapeutic use. Studies have shown that 250 mg of *S. boulardii* lyophilized dietary supplement (with a biological activity of 9.4 x 10 billion viable cells) once per day is a well-tolerated optimal dose yielding gastrointestinal benefits, although dosages up to 1,000 mg per day also have been given with therapeutic results.

Precautions

S. boulardii is generally safe and well-tolerated when taken according to proper dosing guidelines. People who are susceptible to developing yeast infections and people with yeast **allergies** and allergies to *S. boulardii* should not take *S. boulardii*. People who have lactose allergies or lactose intolerance should consult their physician before taking *S. boulardii*.

S. boulardii supplementation is not appropriate for people who have severely weakened immune systems due to disease or **cancer** treatments, as they can develop serious infections, including fungal blood infections (fungemia). People with a central venous catheter should not take *S. boulardii*.

In the United States, *S. boulardii* is classified as a dietary supplement. Although *S. boulardii* has been labeled "generally regarded as safe," by the FDA, there are no safety reviews or approved therapeutic uses by the FDA. There also are significant differences in the biological activity and composition of the various preparations of *S. boulardii*. Therefore, it is important to read labels carefully and consult a physician before taking *S. boulardii*.

KEY TERMS

Colon—Large intestine; the lower part of the digestive system that is primarily responsible for conserving water by absorbing it from the bowel contents.

Clostridium difficile—A species of bacteria of the genus *Clostridium* that causes diarrhea associated with antibiotic use.

Microflora—intestines. Microflora reinforce the barrier function of the intestinal mucosa to help prevent the attachment of pathogenic microorganisms and the entry of allergens.

Nonpathogenic—Incapable of causing disease; harmless.

Probiotics—Live microorganisms or bacteria which, when administered in adequate amounts, confer a health benefit on the host.

Side effects

Except reported cases of fungemia in patients with weakened immune systems who had an indwelling catheter, there have been no reported severe, adverse, or toxic effects of *S. boulardii* supplementation. Side effects are generally mild and may include gas, increased thirst, or **constipation**. Taking the supplement with food may decrease stomach upset. Drinking plenty of liquids during a bout of diarrhea will help avoid dehydration.

If symptoms such as **hives**, rash, **itching**, **wheezing**, chest or throat tightness, difficulty breathing, **fever**, blue skin color, or swelling of the lips, tongue, face or throat occur while taking *S. boulardii*, the person should seek emergency attention, as these are signs of an allergic reaction that requires immediate treatment.

Interactions

Alcohol kills active yeast, so alcoholic beverages should be avoided while taking *S. boulardii*.

S. boulardii supplements should not be taken in combination with medication for active yeast infections. It also should not be taken at the same time as antifungal medications, such as nystatin, fluconazole, or itraconazole because these medications kill the active yeast. Antifungal medications can be taken two to three hours after taking *S. boulardii*.

Antibacterial antibiotics do not interfere with the action of *S. boulardii* and can be taken at the same time as this supplement.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Other drug interactions have not been determined, as most supplements, including *S. boulardii*, have not been thoroughly tested for interactions with other herbs, supplements, drugs, or food.

Resources

BOOKS

Bender, D. A. *A Dictionary of Food and Nutrition.* New York: Oxford University Press, 2005.

Berdanier, C., and J. T. Dywer, eds. *Handbook of Nutrition and Food,* 2nd ed. Boca Raton, FL: CRC Press, 2006.

Elmer G. W., L. V.McFarland, and M. Mcfarland. *The Power of Probiotics: Improving Your Health with Beneficial Microbes (Haworth Series in Integrative Healing.)* New York: Routledge, 2007.

PERIODICALS

Czerucka D., T. Piche, and P. Rampal. "Review Article: Yeast as Probiotics—Saccharomyces Boulardii." *Alimentary Pharmacology & Therapeutics* 15, no. 6 (September 2007): 767–778.

Szajewska H., M. Ruszczynski, and A. Radzikowski. "Probiotics in the Prevention of Antibiotic-Associated Diarrhea in Children: A Meta-Analysis of Randomized Controlled Trials." *Journal of Pediatrics* 149, no. 3 (September 2006): 367–372.

ORGANIZATIONS

Alternative Medicine Foundation, PO Box 60016, Potomac, MD, 20859, (301) 340-1960, http://www.amfoundation.org.

American Dietetic Association, 120 South Riverside Plaza, Suite 2000, Chicago, IL, 60606-6995, (800) 877-1600, http://www.eatright.org.

Food and Agricultural Organization of the United Nations, http://www.fao.org.

Food and Nutrition Information Center, National Agricultural Library, United States Department of Agriculture. 10301 Baltimore Ave., Room 105, Beltsville, MD, 20705, (301) 504-5414, http://fnic.nal.usda.gov.

International Food Information Council, 1100 Connecticut Ave. NW, Suite 430, Washington, DC, 20036, (202) 296-6540, http://www.ific.org.

Angela M. Costello

Sacro-occipital technique *see* **Craniosacral therapy**

SAD *see* **Seasonal affective disorder**

Safflower flower

Description

Safflower is an annual herb whose botanical name is *Carthamus tinctorius*. It is a member of the Asteraceae family. It has long, spiny leaves and yellow or reddish flowers on a stiff, upright stem. The seeds produce an edible oil. Safflower grows to a height of about 3 ft (1 m) in poor, dry soils in full sun. The origins of this plant are not clear, although some herbalists suggest the basin of the Euphrates River. Today safflower grows wild in Iran, northwest India, and North Africa. It has also spread to the Far East and North America. Safflower is cultivated extensively both as a herb and as a food crop.

Other names for safflower include false saffron, dyer's **saffron**, American saffron, bastard saffron, Mexican saffron, and zaffer. Despite these names, safflower is in no way related to true saffron, although it is sometimes used to adulterate that spice because true saffron is very expensive and safflower is relatively cheap. In Chinese medicine, safflower flower is called *hong hua*; in India it is known as *koosumbha*.

General use

Safflower flower has been used in traditional Chinese medicine for thousands of years. It is used to treat menstrual disorders. Safflower flower is an emmenagogue, meaning that it is given to bring on **menstruation**. Safflower is also used to treat menstrual **pain**, to firm up the uterus after **childbirth**, to ease stiffness and pain in the joints, and sometimes also to treat trauma to the abdomen. According to traditional Chinese usage, safflower flower is a blood regulator; that is, it invigorates and harmonizes the blood and dissolves blood clots. Safflower is said to have a warm nature and a pungent taste. Chinese practitioners use safflower oil in *tui na* massage.

Safflower flowers are also used to treat such childhood problems as **measles**, fevers, and skin rashes. Applied externally, safflower flower is used to cleanse wounds. Interestingly, on the other side of the world, North Americans used safflower flower in the nineteenth century in much the same way as the Chinese—to bring on menstruation and to treat measles. They also used it to induce sweating.

Safflower seeds can be pressed to produce an edible oil. The unpurified form of this oil is used as a laxative or purgative to cleanse the bowels. Processed safflower oil does not have laxative properties. The processed oil is used extensively in cooking and for making margarine and salad dressings. The oil is also used in paints and varnishes and is burned for lighting where electricity is unavailable.

Safflower has other nonmedicinal uses. Its flowers produce a dye that in times past was used for dyeing silk yellow or red. Today, chemical dyes have largely replaced safflower flower dye. The flowers were also

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Safflower plant. *(©PlantaPhile, Germany. Reproduced by permission.)*

dried and ground together with finely powdered talc to produce cosmetic rouge.

Modern scientific research shows that safflower oil lowers serum **cholesterol** levels, making it useful in preventing **heart disease**. The claim has also been made that safflower flowers prevent coronary artery disease because they are a digestive bitter and assist in the digestion of oils. Infusions of safflower flowers are used to lower the accumulation of lactic acid in the muscles during athletic competition. In addition, a compound has been isolated from safflower that stimulates the immune system in mice. Additional studies are ongoing to confirm this effect.

More recently, safflower has been identified as the source of several flavonoids with strong antioxidative activity. Flavonoids are water-soluble plant pigments that help to lower inflammation as well as counteract the damaging effects of oxidation on body tissues. **Quercetin**, which is one of the flavonoids found in safflower, is a well-known antioxidant.

As of 2002, several groups of Asian researchers are studying the effectiveness of traditional herbal medicines containing safflower extract in treating bone disease. Although these studies are still in their early stages, preliminary findings indicate that safflower extract inhibits bone resorption and thus may be useful in treating diseases involving bone loss.

Many other medicinal claims have been made for safflower that are less well documented by modern scientists. These include claims that it reduces pain; has antibacterial action; reduces fever; reduces enlarged breasts; and can be used to purge the body of parasitic **worms**.

Preparations

Harvesting safflower flowers requires some care. The flowers are picked just as they begin to wilt and can be used fresh or dried. If they are to be dried, they must be kept away from sunlight during the drying process or they will lose their distinctive reddish-yellow color. Dried flowers are not normally kept more than one year.

Safflower flowers can be used alone or in formulas. They can be prepared as dried powder, tinctures, or decoctions. Used alone, a common daily dosage is

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Antioxidant—An enzyme or other organic substance that is able to counteract the damaging effects of oxidation in living tissue.

Decoction—An extract of a plant's flavor or essence made by boiling or simmering parts of the plant in water.

Emmenagogue—A substance or medication that brings on a woman's menstrual period. Safflower flowers have been used as an emmenagogue.

Flavonoid—Any of a group of water-soluble plant pigments that are thought to have antioxidative, anti-inflammatory, and antiviral properties.

Quercetin—An important flavonoid found in safflower that has strong anti-inflammatory and antioxidative activity.

Resorption—The breakdown or dissolving of bone tissue by biochemical processes in the body.

3 g of decoction or 1 g of powder. A standard infusion of safflower flowers uses 4–8 oz of dried flowers. A common Chinese formula that uses safflower flower is pseudoginseng and dragon blood formula. This formula is used to treat traumatic injuries such as **sprains** or fractures that are accompanied by pain and swelling. The role of the safflower flower in this formula is to move congealed blood and reduce pain.

Precautions

Because safflower flower brings on menstruation, it should not be used by pregnant women. Large doses can cause spontaneous abortion. In addition, because safflower may prolong blood clotting time, it should not be given to patients with peptic ulcers or hemorrhagic illnesses.

Side effects

The unprocessed oil of safflower seed can cause severe diarrhea.

Interactions

Safflower flower is often used in conjunction with other Chinese herbs with no reported interactions. As of 2002, there are no reported interactions of safflower extract or oil with standard pharmaceuticals. Its use in dissolving clots, however, suggests that it should not be taken with allopathic medications given to thin the blood.

Resources

BOOKS

Chevallier, Andrew. *Encyclopedia of Medicinal Plants.* London, UK: Dorling Kindersley Publishers, 1996.

Molony, David. *Complete Guide to Chinese Herbal Medicine.* New York: Berkeley Books, 1998.

Reid, Daniel. *Chinese Herbal Medicine.* Boston, MA: Shambhala, 1996.

PERIODICALS

Hong, H. T., H. J. Kim, T. K. Lee, et al. "Inhibitory Effect of a Korean Traditional Medicine, Honghwain-Jahage (Water Extracts of *Carthamus tinctorius L.* seed and Hominis Placenta) on Interleukin-1-Mediated Bone Resorption." *Journal of Ethnopharmacology* 79 (February 2002): 143-148.

Lee, J. Y., E. J. Chang, H. J. Kim, et al. "Antioxidative Flavonoids from Leaves of *Carthamus tinctorius.*" *Archives of Pharmacal Research* 25 (June 2002): 313-319.

Yuk, T. H., J. H. Kang, S. R. Lee, et al. "Inhibitory Effect of *Carthamus tinctorius L.* Seed Extracts on Bone Resorption Mediated by Tyrosine Kinase, COX-2 (Cyclooxygenase) and PG (Prostaglandin) E2." *American Journal of Chinese Medicine* 30 (2002): 95-108.

ORGANIZATIONS

American Association of Oriental Medicine (AAOM). 909 22nd St. Sacramento, CA 95816. (916) 451-6950. www.aaom.org.

Centre for International Ethnomedicinal Education and Research (CIEER). www.cieer.org.

OTHER

Herbal Dave. http://www.herbaldave.com.

Tish Davidson
Rebecca J. Frey, PhD

Saffron

Description

Saffron is an herbal preparation harvested from the stigma of the *Crocus sativus* flower. It is dark orange and threadlike in appearance, with a spicy flavor and pungent odor. The plant is grown in India, Spain, France, Italy, the Middle East, and the eastern Mediterranean region.

General use

In addition to its culinary uses, saffron is prescribed as a herbal remedy to stimulate the digestive system, ease **colic** and stomach discomfort, and minimize **gas**. It is also used as an emmenagogue, to stimulate and promote menstrual flow in women.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Saffron. *(©PlantaPhile, Germany. Reproduced by permission.)*

Preliminary studies have shown that saffron may also be a useful tool in fighting **cancer**. According to a 1999 study, use of the herb slowed tumor growth and extended lifespan in female rats. A 2002 study done at Indiana University indicated that saffron may not only be effective in treating certain types of cancer, but significantly less likely to cause birth defects if given to pregnant women than all-trans-retinoic acid (ATRA), the compound most often given to treat these cancers. Saffron may thus be a preferable alternative to treating ATRA-sensitive cancers in women of childbearing age.

A 2004 review of previous research in animal models and with cultured human malignant cell lines concluded that clinical trials are warranted to define the possible chemopreventive properties of saffron. A 2006 study at the National Institute of Pediatrics in Mexico concluded: "saffron itself, as well as its carotenoid components, might be used as potential cancer chemopreventive agents."

Additional human studies have indicated that saffron has powerful antioxidant properties; that is, it helps to protect living tissues from free radicals and other harmful effects of oxidation. In Iran and Japan, pharmacology studies in 2000 and 2002 confirmed that saffron extract has an anticonvulsant activity.

Two chemical components of saffron extract, crocetin and crocin, reportedly improved memory and learning skills in learning-impaired rats in a Japanese study published in early 2000. These properties indicate that saffron extract may be a useful treatment for neurodegenerative disorders and related memory impairment.

In 2005 in the Journal of Ethnopharmacology researchers reported on the first scientific study to test the effectiveness of saffron as a treatment for symptoms of mild to moderate **depression**. Daily dosages of 30 mg saffron extract (standardized to 0.7 mg of safranal) were compared to 20 mg of fluoxetine (generic Prozac) in 38 people. Participants were aged 18 to 55 years. At the conclusion of the six-week trial, both treatments demonstrated significant improvements in depressive symptoms. There was no significant difference between the herbal treatment and the drug treatment as far as the amount of improvement demonstrated. However, participants who took the saffron extract did not report side effects, such as **sexual dysfunction**, **tremor**, or sweating, sometimes attributed to fluoxetine. Symptoms were evaluated with the Hamilton Rating Scale for Depression prior to the study and at intervals of one, two, four and six weeks.

Preparations

Saffron is harvested by drying the orange stigma of the *Crocus sativus* flower over fire. Over 200,000 crocus stigmas must be harvested to produce one pound of saffron. This volume makes the herb extremely expensive, and it is often cut with other substances of a similar color (e.g., marigold) to keep the price down.

Safranal, a terpene aldehyde, is formed during the drying process. It is the constituent responsible for much of saffron's characteristic fragrance.

Because saffron is frequently used as a spice to flavor a variety of dishes, particularly in Mediterranean recipes, it can often be purchased by mail order and at gourmet food stores as well as at health food stores. The herb is usually sold in either powdered form or in its original threadlike stigma form. Saffron can cost as much to $10 per gram.

For medicinal purposes, saffron can be taken by mouth in powder, tincture, or liquid form. To make a liquid saffron decoction, mix 6–10 stigmas or strands of saffron in one cup of cold water, bring the mixture to a boil, and then let it simmer. The saffron is then strained out of the decoction, which can be drunk either hot or cold. An average recommended dose of saffron decoction is 1/2–1 cup daily.

Saffron should be stored in an airtight container in a cool location away from bright light to maintain its potency. The herb can be frozen. Properly stored saffron can be used for up to two years. A good measure of the herb's freshness and potency is its odor. If the saffron does not have a noticeable pungent smell, it is probably past its peak.

Precautions

Because saffron can stimulate uterine contractions, pregnant women should never take the herb for medicinal purposes.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Antioxidants—Enzymes that bind with free radicals to neutralize their harmful effects.

Crocetin—A reddish-yellow plant pigment found in saffron that has been studied for its anticancer effectiveness.

Decoction—A herbal extract produced by mixing an herb with cold water, bringing the mixture to a boil, and letting it simmer to evaporate the excess water. Decoctions are usually chosen over infusion when the botanical or herb in question is a root, seed, or berry.

Emmenagogue—A medication or substance given to bring on a woman's menstrual period.

Free radicals—Reactive molecules created during cell metabolism that can cause tissue and cell damage like that which occurs in aging and with such disease processes as cancer.

Stigma—The thread-like filament found in the center of a flower where pollen collects.

Tincture—A liquid extract of an herb prepared by steeping the herb in an alcohol and water mixture.

Saffron should always be obtained from a reputable source that observes stringent quality control procedures and industry-accepted good manufacturing practices. Because of its high cost, saffron is sometimes found in adulterated form, so package labeling should be checked carefully for the type and quality of additional ingredients.

Botanical supplements are regulated by the FDA; however, as of 2008 they were not required to undergo any approval process before reaching the consumer market and were classified as nutritional supplements rather than drugs. Legislation known as the Dietary Supplement Health and Education Act (DSHEA) was passed in 1994 in an effort to standardize the manufacture, labeling, composition, and safety of botanicals and supplements. In January 2000, the FDA's Center for Food Safety and Applied **Nutrition** (CFSAN) announced a ten-year plan for establishing and implementing these regulations by the year 2010.

Side effects

Although there are no known side effects or health hazards associated with recommended dosages of saffron preparations in healthy individuals, people with chronic medical conditions should consult with their healthcare professional before taking the herb. In addition, pregnant women should never take saffron, as the herb stimulates uterine contractions and may cause miscarriage.

Despite earlier reports of serious adverse effects from as little as 5 grams of saffron, there is no scientific evidence as to the toxicity of *Crocus sativus*. According to Subhuti Dharmananda, director of the Institute for Traditional Medicine in Portland, Oregon, "all recent research reports indicate that saffron is non-toxic." The so-called meadow saffron *(Colchicum autumnale)* is highly toxic, however, and is sometimes mistaken for the non-toxic medicinal plant *Crocus sativus*.

Interactions

As of 2008, there were no reported negative interactions between saffron and other medications and herbs, although certain drugs with the same therapeutic properties as saffron may enhance the effect of the herb.

Resources

PERIODICALS

Dharmananda, Subhuti. "Saffron: An Anti-Depressant Herb." *Institute for Traditional Medicine* (May 2005). www.itmonline.org/arts/saffron.htm (February 6, 2008).

Noorbala, A. A. "Hydro-alcoholic Extract of Crocus Sativus versus Fluoxetine in the Treatment of Mild to Moderate Depression: A Double-Blind, Randomized Pilot Trial." *Journal of Ethnopharmacology* 97, no. 2 (2005): 281–284.

ORGANIZATIONS

Institute for Traditional Medicine, 2017 SE Hawthorne Blvd., Portland, OR, 97214, (503) 233-4907, http://www.itmonline.org.

Office of Dietary Supplements. National Institutes of Health, Building 31, Room 1B25. 31 Center Dr., MSC 2086, Bethesda, MD, 20892-2086, (301) 435-2920, http://odp.od.nih.gov/ods/.

United States Food and Drug Administration (FDA), Center for Food Safety and Applied Nutrition, 5100 Paint Branch Parkway, College Park, MD, 20740, (888) SAFEFOOD, http://www.cfsan.fda.gov.

Paula Ford-Martin
Clare Hanrahan

Sage

Description

Sage (*Salvia officinalis*) is native to the Mediterranean and naturalized throughout Europe and North America. Known as garden sage, meadow sage, and

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

true sage, this pungent herb is a member of the Lamiaceae, or mint, family. The genus name is taken from the Latin *salvare* meaning "to save." The specific name *officinalis* indicates that sage was included on official lists of medicinal herbs. There are numerous species of sage, including clary sage (*S. sclarea*) named because of its traditional use as an eyewash. Native Americans used the roots and leaves of lyre-leafed sage (*S. lyrata L.*), also known as cancerweed, as a salve for sores and in a tea to treat colds and coughs. Another species, known as divine sage (*S. divinorum*), a native of Oaxaca, Mexico, has been used for centuries by local shamans to achieve altered states of consciousness in healing rituals. There are many more garden varieties, including red or purple sage (*S. officinalis purpurascens*), which is valued particularly for its medicinal purposes.

Sage thrives in full sun and well-drained soils, growing wild in some areas. It is a hardy, evergreen shrub with a deep taproot and an erect root stalk that produces woody, square, slightly downy, branching stems that may reach a height of 4 ft (1.2 m). This familiar garden perennial has long, light green leaf stalks that bear simple, opposite, lance- or oval-shaped leaves. The strong and pliable leaves are veined, with a velvet-like, somewhat crinkled, texture and may grow to 2 in (5.1 cm) long in some varieties. Leaf margins resemble a fine embroidery finish with rounded, minutely toothed edges. They are a gray green on the top, and lighter on the underside. The entire plant is strongly aromatic, with a familiar pungency. Fresh leaves are bitter to the taste. Sage blossoms in the middle of summer with small white, blue, or purple flowers.

General use

Sage is a celebrated herb long valued for its many uses in medicine, magic, and meal preparation. Poets, shamans, herbalists, cooks, emperors, and common folk have touted its virtues for thousands of years. The Romans revered the herb as a sacred plant, and the Egyptians used it to treat the plague. Nicholas Culpeper, the seventeenth-century herbalist and astrologer, believed sage was under the dominion of Jupiter. Folk belief placed the herb under the influence of Venus, and sage was traditionally used to aid conception. One folk tradition encouraged eating a bit of sage each day during the month of May to assure immortality. Failing to live up to this promise, sage was traditionally planted on graves.

Sage's main constituents include volatile oil, diterpene **bitters**, thujone, camphor, tannins, triterpenoids, resin, flavonoids, estrogenic substances, phenolic acids, including rosmarinic and caffeic acids, and saponins. It acts as a carminative, antiperspirant, antispasmodic, astringent, antiseptic, and antibiotic. More recently sage has been discovered to have antiallergic effects.

KEY TERMS

Antioxidant—Any one of a group of substances that destroy cell-damaging free radicals in the body.

Carminative—Something that prevents the formation of intestinal gas or allows it to be expelled.

Thujone—A natural chemical compound found in sage as well as in wormwood and certain other spices. Thujone in large quantities can cause hallucinations and convulsions.

Tonic—A preparation or medicine that invigorates, strengthens, or restores tone to body tissues.

Sage has been used as a general tonic. It is the preferred beverage tea in many cultures, particularly in China, where the root of the species *S. miltiorrhiza*, known as *dan shen*, is used for its soothing and healing qualities. Sage has antioxidant properties that have recently been used by the food industry to improve the stability of oils that must be kept in storage for long periods of time.

Sage is also high in **calcium**. It provides potassium, **magnesium**, and **zinc** as well as vitamins C and B-complex. Sage is calming to the central nervous system and may reduce anxiety. It can soothe spasms in smooth and skeletal muscles. Sage is a bitter digestive stimulant and acts to relieve digestive problems. The herb also contains estrogenic substances that help to regulate **menstruation**.

Taken cold, the tea is astringent and diuretic, and will help to reduce night sweats in menopausal women and reduce milk flow in breast-feeding mothers. Taken hot, a sage infusion acts as an expectorant and is good for common colds and flu. A strong infusion of sage, used as a hair rinse, may darken hair color and help reduce **hair loss**. The antibacterial properties in sage make it a useful mouthwash for gingivitis and an antiseptic **sore throat** gargle. Sage is still listed in the *United States Pharmacopoeia* as a treatment for bleeding gums and sore throats. A tea made from the leaves may be used as an antiseptic wash for **wounds** and sores. Crushed leaves may be applied to relieve insect **bites**. The powdered herb, added to toothpaste and powders, helps to whiten teeth.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Some research indicates that sage may boost insulin action and be helpful to treat non-insulin dependent diabetes. The herb may reduce blood sugar levels and promote bile flow. Among its many virtues, sage is said to improve memory and bring prosperity to the household. Dried sage, burned as a smudge, is used in Native American rituals as a purifying and cleansing herb believed to promote healing, wisdom, protection, and longevity.

Preparations

The leaf is the medicinal part of the herb. Both the fresh and dried leaves may be used for medicinal or culinary purposes. The leaves are harvested when the herb begins to flower in the summer of its second year. The leaves are removed from the woody branches and spread in a single layer on a tray or screen in a warm, airy, and shady place. Exposure to direct sunlight during the drying process will result in a significant loss of the volatile oil. Dried leaves are stored in a dark, airtight container.

To make an infusion, 1 pint of nonchlorinated water that has just reached the boiling point is poured over 2–3 tsp of dried or fresh sage leaves in a glass container. The mixture is covered and steeped for 10–15 minutes. This liquid can be drunk warm or cold, up to 3 cups daily, or used as a gargle or hair rinse.

Tinctures of sage are available commercially. A standard dose is 16–40 drops, up to three times daily.

To make a sage compress, a clean, cotton cloth is soaked in an infusion of sage leaves and then applied to wounds or sores to aid healing.

Precautions

Sage preparations in medicinal doses should not be used during **pregnancy**, although use of small amounts of sage for culinary purposes is safe. Breastfeeding women should avoid sage unless they are using the herb to reduce the flow of breast milk when weaning. People with **epilepsy** should not use sage due to the thujone content in the herb. Thujone may trigger convulsions in these people, and the essential oil contains as much as 25% thujone. The essential oils may accumulate in the system, so long-term use of **essential oils** (more than two weeks at a time) should be avoided. Those allergic to sage or other plants in the mint family should avoid this herb.

Side effects

There are no adverse side effects when sage is taken in designated therapeutic doses. However, sage may interfere with absorption of iron and other minerals

Interactions

As of 2002, no interactions have been reported between sage and standard prescription medications.

Resources

BOOKS

The Herbal Healer, Prevention Health Library. Emmaus, PA: Rodale Press, Inc., 1998.

McIntyre, Anne. *The Medicinal Garden*. New York: Henry Holt and Company, 1997.

PDR for Herbal Medicines. Montvale, NJ: Medical Economics Company, 1998.

Prevention's 200 Herbal Remedies, 3rd edition. Emmaus, PA: Rodale Press, Inc., 1997.

Reid, Daniel. *Chinese Herbal Medicine*. Boston, MA: Shambhala, 1996.

PERIODICALS

Miura, K., H. Kikuzaki, and N. Nakatani. "Antioxidant Activity of Chemical Components from Sage (*Salvia officinalis L.*) and thyme (*Thymus vulgaris L.*) Measured by the Oil Stability Index Method." *Journal of Agricultural and Food Chemistry* 50 (March 27, 2002): 1845-1851.

Shi, T. Y., and H. M. Kim. "Inhibition of Immediate-Type Allergic Reactions by the Aqueous Extract of *Salvia plebeia*." *Immunopharmacology and Immunotoxicology* 24 (May 2002): 303-314.

Zainuddin, A., J. Pokorny, and R. Venskutonis. "Antioxidant Activity of Sweetgrass (*Hierochloe odorata Wahlnb.*) Extract in Lard and Rapeseed Oil Emulsions." *Nahrung* 46 (February 2002): 15-17.

ORGANIZATIONS

United States Pharmacopoeia (USP). 12601 Twinbrook Parkway, Rockville, MD 20852. (800) 822-8772. www.usp.org.

OTHER

"1001 Herbs for a Healthy Life." www.herb.com.

Clare Hanrahan
Rebecca J. Frey, PhD

Saliva sample testing

Definition

Saliva sample testing is a technique used to collect samples of a person's saliva, or spit, to check for or monitor certain drugs, hormones (chemical messengers from one cell or group of cells to another), antibodies (substances in the body's blood or fluids that act against foreign substances such as bacteria), and other molecules (the smallest chemical elements)

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Saliva sample testing is a technique used to collect samples of a person's saliva, or spit, to check for or monitor certain drugs, hormones, antibodies and other molecules present in the body. *(imagebroker / Alamy)*

present in the body. With a saliva sample, diagnostic data for diseases or conditions such as human immunodeficiency virus (HIV), hypogonadism (reduced or absent secretion of hormones from the sex glands, the gonads), **measles**, **hepatitis** (a liver disease caused by the hepatitis A virus), certain cancers, low fertility, **menopause** and others are available without having to draw a person's blood. Saliva can reveal use of alcohol and many drugs. With simple, use-at-home kits, women can self-determine when they are ovulating, which is especially useful when trying to conceive a child. Researchers also have found they can detect **stress** in a person through saliva samples.

Origins

In ancient times, saliva served as "judge and jury" when a person was accused of a wrong-doing. The suspect was given a mouthful of dry rice; and if his **anxiety** reduced saliva flow to the point that he could not swallow the rice, he was considered guilty as charged. To this day, a **dry mouth** signals nervousness. Spittoons were common in history until it was discovered that saliva carried germs.

Scientists began to realize that along with germs, saliva carried clues about our bodies. Saliva contains important enzymes (organic substances that accelerate chemical changes) that help digest food, and this natural body fluid serves as an antimicrobial, fighting viruses and diseases that enter our bodies. Additional properties in saliva help fight off bacteria.

In the twentieth century, researchers learned that saliva carried clues to the presence of diseases and conditions that once were only monitored by measuring blood, urine, or other fluids. For example, a Spanish gynecologist named Biel Cassals, M.D., noticed in 1969 that saliva would "fern," or crystallize during hormonal changes, almost identically to the changes observable in cervical mucous. These changes in cervical mucous have helped predict when a woman was about to ovulate. Further studies of salivary ferning through the 1990s showed that saliva also could also help predict ovulation (when an egg is released from an ovary in response to a hormonal signal) with excellent accuracy. By the twentieth-first century, at-home kits using saliva to help women trying to conceive children were introduced and marketed.

Since the 1980s, some nutritional practitioners have used saliva samples to measure certain imbalances and disease processes in order to determine a person's need for a nutritional plan and for dietary supplements. In addition to hormones related to ovulation, some physicians and other practitioners have measured other hormone levels in saliva, including testosterone, cortisol, and **melatonin**. Melatonin levels are much higher at night than in the daytime. Sometimes supplements are suggested for people who have trouble sleeping.

By 2004, more and more uses for saliva sample testing were in experimental stages or being approved by the U.S. Food and Drug Administration (FDA). In fact, saliva research has led to many important discoveries. Saliva holds a complete imprint of a person's DNA, or genetic makeup. In effect, saliva once again serves as judge and jury, since a crime laboratory can determine who committed a crime based on the saliva left after licking an envelope seal, for example. Saliva tests are increasingly being used to test people for the presence of drugs and alcohol and may one day be used to test them immediately upon being pulled over or at police checkpoints.

Benefits

Laboratory tests such as saliva sample tests are used to help a person detect a disease or other condition. Saliva sample testing is particularly beneficial because is it less invasive or non-invasive. Non-invasive means the skin does not have to be broken or an organ or cavity of the body does not have to be entered. As a result, test results may be more accurate in that less stress on the system during the production of the specimen means less interference of stress effects on the factors being tested. In some cases, a swab is put in the mouth to collect the saliva or sufficient quantities of saliva need to be gathered by spitting for several minutes into a collecting tube, but studies have shown that many patients prefer this collection method to

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Cervical—Having to do with the lower part of the uterus (womb), which reaches into the vagina and leads to the outside of the body.

Cortisol—A hormone related to performance and stress levels, detectable in saliva.

Melatonin—A hormone, detectable in saliva, sometimes called "the chemical equivalent of night" that is involved in regulating sleeping and waking cycles or the complex rhythms related to light and dark, the seasons of the year, and fertility.

N.D. or Doctor of Naturopathic Medicine—In some states, Naturopathic doctors, medically trained in diagnostics and natural and alternative therapies, are licensed as Naturopathic physicians. In other states, they may be licensed or registered as Naturopathic doctors. They are distinct from other naturopathic doctors, who may be correspondence school trained in traditional alternatives, by being medically trained graduates of accredited programs in naturopathic medicine, and board certified by a state's Department of Health. Information on finding a naturopathic physician may be found at www.naturopathic.org.

Ovulation—When an ovum, or egg, is released from a woman's ovary. Ovulation is determined by certain hormonal activity, which reveals itself in patterns seen in a woman's cervical mucous. For example, the ferning pattern at the time of greatest fertility, a pattern which facilitates sperm conductance for fertilization of the egg.

Pathologist—A physician specializing in the study of disease, particularly as is involves cellular changes in the body and laboratory tests and methods.

being pricked in the arm or finger with a needle. Health care workers say saliva samples are much easier to obtain, especially from children.

Saliva sample tests offer other benefits as well, depending on the specific test and its use. The saliva test for HIV provides results in about 20 minutes, while the person waits at the testing facility. In the past, people having HIV tests had to wait for days or weeks to learn results and often did not return to learn the results. Another major benefit of oral HIV tests is that they can reduce transmission of HIV to health care workers, who once had to worry about accidentally pricking themselves with the needle they had used to test an HIV-infected patient. Those who test for HIV with saliva kits will not have to worry about handling blood and no cases of HIV transmission through saliva have been documented. The HIV sample test's non-invasive nature and rapid results may even lead to increased screening, especially among young people. The ease and rapid results could make the test valuable in Africa and other countries with widespread need for testing.

Finding less invasive methods to test for a number of diseases is a benefit for many people. Research has been done on a saliva test to detect a person's immune response to the anthrax vaccine, in the event of a bio-terror attack, which would help emergency workers rapidly determine who has been immunized and who has not without having to have access to their medical records.

At-home kits that use saliva instead of urine to help determine ovulation have made it more convenient for women trying to conceive children to track their hormonal cycles, eliminating a lot of the "guesswork." Instead of simply predicting ovulation, the new saliva-based tests more precisely indicate the timing of ovulation. They also allow women to save results from previous months and compare cycles to determine patterns. The tests are reportedly accurate up to 98% for timing of ovulation.

Saliva sampling is also a more accurate way of measuring a woman's hormone levels, pre-, peri-, and post-menopause, for fertility studies and hormone replacement therapy. The reproductive hormones of estrogen and progesterone weave a complex pattern throughout the length of a woman's cycle. For women who are still cycling, a blood test for hormone levels reveals only a single snapshot of this very complex pattern, whereas the saliva sampling, done throughout the cycle, reveals the relationships and balance of the hormones. For women who are no longer cycling, saliva sampling is able to quantify and qualify the amounts and rates of hormone level changes, and may reveal that a woman's symptoms, for example, are a result of low progesterone rather than low estrogen. Saliva sampling may be used as a very effective diagnostic tool in helping a woman balance her hormone levels, thereby guiding the **aging** process with a more fluid, and graceful adjustment over time.

Description

In most cases, the saliva sample test works by using a plastic stick with a pad on the end to swab or

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

rub against the patient's gums to gather saliva. Other tests work by simply inserting a foam pad on a stick into the person's mouth, having the person pucker his or her lips, and moving the pad slightly around for a period of time until enough saliva fluid has been gathered. Still others rely on spitting directly into a collecting container.

The collected saliva then is exposed to a reagent, a chemical substance that is known to react a certain way, to indicate a positive result or measures ranges. For instance, the pad from an HIV saliva collection is put in a vial of reagent solution and within 20 minutes, certain colored lines may appear, indicating a positive result. Other samples may be collected at home, mailed in to a lab, and may take longer to be analyzed and reported back.

Women who test at home for ovulation will place a drop of saliva onto the device, let it dry and look through a dial that magnifies and lights up the sample for about 45 seconds.

Preparation

Preparation may depend on the use of the test and it is best to follow any instructions given by laboratory personnel or on a home test kit package. For some saliva tests, it is recommended that the person have nothing in his or her mouth for at least five minutes before sample collection. Certain foods may need to be avoided for a period of time prior to testing. These foods are indicated in the instructions. One such set of instructions advises the avoidance of eating, drinking and teeth brushing for a minimum of 60 minutes prior to collection. If sublingual (under the tongue) hormone drops are being used, a person will need to wait until after collecting the saliva before taking the drops. Saliva sampling may not be accurate or useful if a person has gingivitis, or **gum disease**.

Precautions

If a person has a condition such as **Sjögren's syndrome** that causes dry mouth and poor saliva production, he or she may not be a candidate for saliva sample testing. Certain medications also can cause a dry mouth.

When using at-home ovulation saliva test kits, women must remember not to use them to help prevent **pregnancy**. The kits are not designed for that purpose. **Smoking**, eating, drinking, and teethbrushing can affect test results, as can how the person puts saliva on the slide. Further, any home test kit is not intended or recommended to take the place of periodic visits to a physician or other health professional.

Some involved in HIV prevention have expressed concerns about saliva sampling for HIV, including an unintended effect of making the general population wrongly believe that HIV can be spread through saliva. Others have been concerned that the ease of saliva testing could cause abuse of testing, with authorities testing without first getting consent from people.

Caution should be used when having saliva sample tests for nutritional measurements. It is best to check with a registered alternative medicine practitioner or licensed physician before paying for at-home saliva tests for this purpose. Some saliva sample tests will be completed at medical offices or sent to laboratory facilities. Those done at home are recommended to be completed with kits approved by the FDA or by a professional healthcare provider.

Side effects

There are no known side effects to saliva sample testing.

Research and general acceptance

In March 2004, the FDA approved saliva sample testing for HIV. Home-based test kits have been approved by the FDA for use in determining ovulation. Many other tests were under constant experimentation or in the approval process throughout the early twenty-first century. Manufacturers must go through an exhaustive process of clinical trials and application with the FDA before marketing these types of products to the public.

Training and certification

The Clinical Laboratory Improvement Amendments (CLIA) passed by Congress in 1988 and finalized in 1992, regulate clinical laboratories in the United States, including education and training of lab personnel. Generally, test samples are processed by medical laboratory technicians (MLTs) or clinical laboratory technicians (CLTs). They usually have an associate degree and have completed an accredited program for lab technicians. The technicians are supervised by other laboratory professionals with more advanced scientific training. Technologists with special training reviewing results under microscopes or preparing tissue samples to diagnose disease also will handle a sample, depending on the type of test involved. A laboratory director oversees the operation. He or she usually is a physician (an M.D. or, as allowed in some states, an N.D.) or doctoral level scientist (Ph.D.) with training in interpreting disease via cell samples. Often, the physician is a board-certified pathologist.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Resources

PERIODICALS

Berger, Abi. "Saliva Test Could Diagnose Cancers." *British Medical Journal* (March 25, 2000): 825.

"FDA Approves Oral HIV Rapid Saliva Test 99 Percent Accuracy Results in 20 Minutes." *British Medical News Today* (March 27, 2004).

"Oral HIV Testing Can Increase Belief in Disease Transmission Through Saliva." *Biotech Week* (September 10, 2003): 229.

"Saliva-based Rapid Test Kit Hits Market." *Medical Devices & Surgical Technology Week* (September 23, 2001).

Young, Karen. "FDA Clears New Saliva-based Test for Determining Ovulation." *Diagnostics & Imaging Week* (August 14, 2003): 3–4.

ORGANIZATIONS

U.S. Food and Drug Administration Office of In Vitro Diagnostic Device Evaluation and Safety. HFZ-440 2098 Gaither Road, Rockville, MD 20850. (301) 594-3084. http://www.fda.gov/cdrh/oivd.

OTHER

Barrett, Stephen M.D. *Dubious Urine/Saliva Testing*. [cited June 14, 2004]. http://www.canoe.ca/HealthAlternativeColumns/001220.html.

Consumer Information. Home-use Tests. U.S. Food and Drug Administration. 2004. [cited June 14, 2004]. http://www.fda.gov/cdrh/oivd.

History of Method Development. Website. Craig Medical Distribution Inc. 1997. http://www.craigmedical.com/ovulation_abstract.htm.

Home-use Tests. Ovulation (Saliva Test). U.S. Food and Drug Administration. 2004. [cited June 14, 2004]. http://www.fda.gov/cdrh/oivd.

Latest Defense Against Bioterrorism: Saliva. Montana State University. 2003. [cited June 14, 2004]. http://techlink.msu.montana.edu/articles/saliva.html.

New Saliva Test Offers Fast, Simple Means of Measuring Stress. Northwestern University. 1997. [cited June 14, 2004]. http://www.northwestern.edu/univ-relations/media.

Saliva. National Institute of Dental and Carniofacial Research, National Institutes of Health. http://www.nidcr.nih.gov/spectrum/nidcr2/2textsec5.htm.

The Saliva Story—Part 1. Website. Aeron Life Cycles Clinical Laboratory. [cited June 14, 2004]. http://www.areon.com/volume_2_number_1.htm.

The Young Prefer Rapid Saliva HIV Test. David Douglas, HIV and AIDS News Stories. August 3, 2001. [cited June 14, 2004]. http://www.hivandhepatitis.com.

Teresa G. Odle

Sargassum seaweed

Description

Sargassum seaweed is a type of seaweed found along the coasts of Japan and China. Two species, *Sargassum fusiforme* and *Sargassum pallidum*, are both referred to as sargassum seaweed or gulfweed in English and *hai zao* in Chinese.

Sargassum seaweed is a brown algae with leafy segments supported at the surface of the ocean by air bladders. Many species of sargassum are found worldwide. In fact, the Sargasso Sea, an area of the Caribbean near the West Indies, is named for its large floating masses of sargassum seaweed. The sargassum used in healing, however, is usually of Asian origin.

General use

Sargassum seaweed, or *Hai zao*, has been used in **traditional Chinese medicine** (TCM) since at least the eighth century A.D. According to TCM, this seaweed has a cold nature and a salty, bitter taste.

The primary use of sargassum seaweed is to treat goiters. A goiter is a nodule in the neck caused by enlargement of the thyroid gland. The thyroid needs **iodine** to produce a critical hormone, thyroxin, which regulates body metabolism. When too little iodine is consumed in the diet, the thyroid gland enlarges. The primary natural sources of dietary iodine are sea salt, fish, and vegetables that live in the ocean. In the days before good refrigeration, it was often difficult for people living far from the ocean to get enough iodine in their **diets**. In modern times, widespread refrigeration or freezing of fish and good transportation to inland markets have made iodine deficiency and goiters rare in the developed world. In addition, commercial salt manufacturers often produce a version of their product, called iodized salt, that is available in supermarkets and has iodine artificially added. Despite these advances, iodine deficiency is still a worldwide problem and is a major cause of mental and learning disabilities, particularly in undeveloped regions.

The use of sargassum seaweed as a source of iodine to treat goiters is a scientifically sound practice. In TCM, sargassum seaweed is also used to treat other thyroid disorders such as Hashimoto's disease. In addition, it is prescribed as a diuretic to increase the production of urine and reduce **edema**, and it is used to threat **pain** from hernia and swollen testes. Sargassum seaweed is found in many common Chinese formulas. In combination with silkworm, prunella (a plant also known as selfheal), and scrophularia (a plant root), it is used to treat scrofuloderma, which is **tuberculosis** of the skin. When sargassum seaweed is combined with water chestnut, it is used to treat silicosis, a debilitating and sometimes-fatal lung disease. Silicosis is also known as grinder's disease or potter's rot.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Sometimes, modern herbalists use sargassum seaweed to promote weight loss because it encourages water loss. This treatment can be risky because of the role iodine plays in setting the metabolic rate of the body. In China and Japan, fresh sargassum seaweed is sometimes stir-fried and eaten as a vegetable.

Reliable scientific evidence shows that sargassum seaweed is good at increasing dietary iodine as a treatment for goiter. There is little scientific evidence that sargassum seaweed is useful in treating other thyroid problems, such as Hashimoto's disease. Research shows that sargassum seaweed also has mild diuretic and anti-fungal properties. Studies on different, but related, species of sargassum seaweed showed that they contained **antioxidants** that helped protect the livers of rats when they were subjected to chemical damage in laboratory experiments. In general, antioxidants are thought to slow **aging** and protect the body from damage caused by free radicals.

Some research has shown that *Sargassum fusiforme* may be useful in the fight against human immunodeficiency virus (HIV). A study published in a 2008 issue of *Virology Journal* reported that a bioactive portion, or fraction, of the seaweed blocked infection with HIV and also inhibited the virus from replicating following infection. The study's authors concluded that *Sargassum fusiforme* was "a lead candidate for anti-HIV-1 drug development."

Preparations

Sargassum seaweed is collected from the ocean throughout the year. To store for future use, it is dried at cool temperatures away from direct sunlight. This alga is a component of several Chinese formulas, including a goiter treatment called *haizao yuhu tang* and a scrofuloderma treatment known as *neixiao lei li wan*. Dosage varies depending on the condition being treated.

Precautions

Because thyroid problems are serious, people with enlarged thyroid or nodules in the neck should seek professional help from a physician and not try to treat these problems solely with alternative remedies. Sargassum seaweed should be used with caution for weight loss because of the interactions of this product and the thyroid gland.

Side effects

A report published in the *Journal of General Internal Medicine* in 2006 stated, "Physicians should advise patients with underlying thyroid disease to avoid all complementary or alternative medications containing iodine." The report authors based their warning on a case study involving a woman who had developed iodine-induced **hyperthyroidism** (overactive thyroid gland) after drinking a tea prescribed by a Chinese alternative practitioner. The tea was made with **kelp**, Sargassum weed, and kombu. After she had stopped drinking the tea, her hyperthyroidism disappeared in time.

KEY TERMS

Diuretic—Any substance that increases the production of urine.

Edema—Water retention in the body that often causes swelling of the hands and feet.

Hashimoto's disease—A condition in which the body makes antibodies to destroy the thyroid; tendency toward this disease is thought to be inherited.

Scrofuloderma—Abscesses on the skin that are a symptom of the lung disease tuberculosis.

Silicosis—A serious lung disease caused by prolonged inhaling of dust from stone or sand that contains silicon dioxide; also called grinder's disease or potter's rot.

Interactions

Some traditional Chinese herbalists claim that **licorice** and sargassum seaweed should not be used together; however, no scientific research supported this claim as of 2008. Studies of interactions between sargassum seaweed and Western pharmaceuticals did not exist as of 2008; however, individuals taking medication for thyroid disorders should discuss the use of this remedy with their healthcare provider before using it.

Resources

PERIODICALS

Mssig, Karsten, Claus Thamer, Roland Bares, Hans-Peter Lipp, Hans-Ulrich Hring, and Baptist Gallwitz. "Iodine-Induced Thyrotoxicosis After Ingestion of Kelp-Containing Tea." *Journal of General Internal Medicine* 21, no. 6 (June 2006): C11–C14.

Paskaleva, E., X. Lin, K. Duus, J. McSharry, J. Veille, C. Thornber, et al. "Sargassum Fusiforme Fraction Is a Potent and Specific Inhibitor of HIV-1 Fusion and Reverse Transcriptase." *Virology Journal* 5, no. 1 (January 15, 2008): 8.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

ORGANIZATIONS

American Association of Acupuncture and Oriental Medicine (AAAOM), PO Box 162340, Sacramento, CA, 95816, (916) 443-4770, http://www.aaaomonline.org.

Tish Davidson
Teresa G. Odle
Leslie Mertz, Ph.D.

Sassafras

Description

Sassafras is a small tree, *Sassafras albidum*, belonging to the laurel family native to eastern North America. Sassafras grows in woodlands in rich, sandy, well-drained soil from Maine to Florida, reaching a height of about 75 ft (25 m). The tree has also been imported to Europe, probably by the Spaniards who discovered it in Florida.

All parts of the sassafras tree are aromatic with a pleasant odor and a slightly sweet but astringent taste. The root and root bark were formerly used medicinally. The root is thick and woody. When alive, it is whitish, but rapidly turns cinnamon brown on exposure to air. Other names for sassafras are ague tree, cinnamon wood, saxifrax, saxafrax, and saloop. There are other plants that have the word sassafras in their name that are completely unrelated to *Sassafras albidum*. These include black sassafras (*Oliveri cortex*); swamp sassafras (*Magnolia glauca*); Australian sassafras (*Antherosperma moschatum*); sassafras goesianum (*Massoja aromatica,*); and California sassafras (*Umbellularia californica*).

General use

Sassafras should not be taken internally or used for healing except for topical applications. In the 1960s scientists determined that the volatile oil derived from sassafras root contains safrole as its chief component. Safrole is a known carcinogen in animal studies. Safrole in concentrations of 80–90%, similar to its concentration in the volatile oil, produced tumors in the livers of laboratory animals. In 1960 the United States Food and Drug Administration (FDA) banned sassafras volatile oil as a food and flavoring additive. In 1976 it prohibited the interstate shipment of sassafras bark for making tea. A safrole-free sassafras extract is now available; however, there are questions about its potentially cancer-causing properties.

Prior to the discovery that sassafras contains a carcinogen, it had a long and widespread history of folk use as a medicine. Native Americans used sassafras to cure many different conditions, but especially as a spring blood tonic. Before long, Native Americans introduced the European settlers to sassafras. It became a sought-after herb in Europe. Sassafras root bark was imported from the United States, and sassafras trees were also planted in Europe. Sassafras tea, sold under the name saloop, was a popular beverage in London.

Sassafras. *(©PlantaPhile, Germany. Reproduced by permission.)*

Before sassafras was discovered to be a carcinogen, it was used as a diuretic as well as to treat urinary tract disorders and kidney problems. It was also used as an ineffective treatment for **syphilis**. Other herbal practitioners used sassafras to treat rheumatism and arthritis. It was given to women to ease painful **menstruation** and help their recovery from **childbirth**. Other conditions treated with sassafras include high blood pressure, colds, flu, and **bronchitis**. The volatile oil was used in dentistry in combination with cloves and other herbs to relieve **toothache**. By far the most common use of sassafras, however, was to flavor root beer.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Carcinogen—Any substance that has the potential to cause cancer.

Diuretic—Any substance that increases the production of urine.

Volatile oil—A distilled oil obtained from plant tissue. This type of oil is called volatile because it evaporates rapidly.

Externally, sassafras washes were used to soothe the eyes. The volatile oil was used as a liniment and to treat **bruises** and swellings. The volatile oil was also used to control head and body lice. The risks in applying sassafras oil externally are still unclear.

Despite the fact that sassafras contains a proven carcinogen, it is still used today in many parts of the Appalachian Mountains, where the root is locally gathered. In 1994, there was evidence that teas containing sassafras were still being sold in some health food stores. Even the health community has not fully grasped the harmful effects of sassafras. A 1993 article in *Midwifery Today and Childbirth Education* recommended sassafras as a cure for breast inflammation after childbirth. Many reputable studies, however, indicate that there is a definite health hazard in using even small amounts of sassafras either as oil or tea.

Preparations

Sassafras should not be used. In times past, before its potentially harmful effects were recognized, it was available as a volatile oil, as bark that could be brewed into tea, and as a component of tonic formulas and tonic teas. Since use of sassafras is not recommended, there is no recommended dosage.

Precautions

Sassafras should not be used.

Side effects

It has been reported that as little as one teaspoon of pure sassafras oil can kill an adult, and only a few drops can kill a toddler. The signs of sassafras poisoning include **nausea**, **vomiting**, confusion, and paralysis. The potentially hazardous dose of safrole has been determined to be 0.66 mg/kg of a person's body weight. This amount is less than the dose often found in sassafras tea.

Interactions

Sassafras should not be used. Since it is toxic, drug interactions have not been investigated.

Resources

BOOKS

Lawless, Julia. *The Illustrated Encyclopedia of Essential Oils.* Rockport, MA: Element, 1995.

PDR for Herbal Medicines. Montvale, New Jersey: Medical Economics Company, 1998.

Peirce, Andrea. *The American Pharmaceutical Association Practical Guide to Natural Medicines.* New York: William Morrow and Company, 1999.

OTHER

Plants for the Future: Sassafras albidum. http://www.metalab.unc.edu.

Tish Davidson

Saw palmetto

Description

Saw palmetto is an extract derived from the deep purple berries of the saw palmetto fan palm (*Serenoa repens*), a plant indigenous to the coastal regions of the southern United States and southern California. There is an estimated one million acres of wild saw palmetto palms in Florida, where the bulk of commercial saw palmetto is grown.

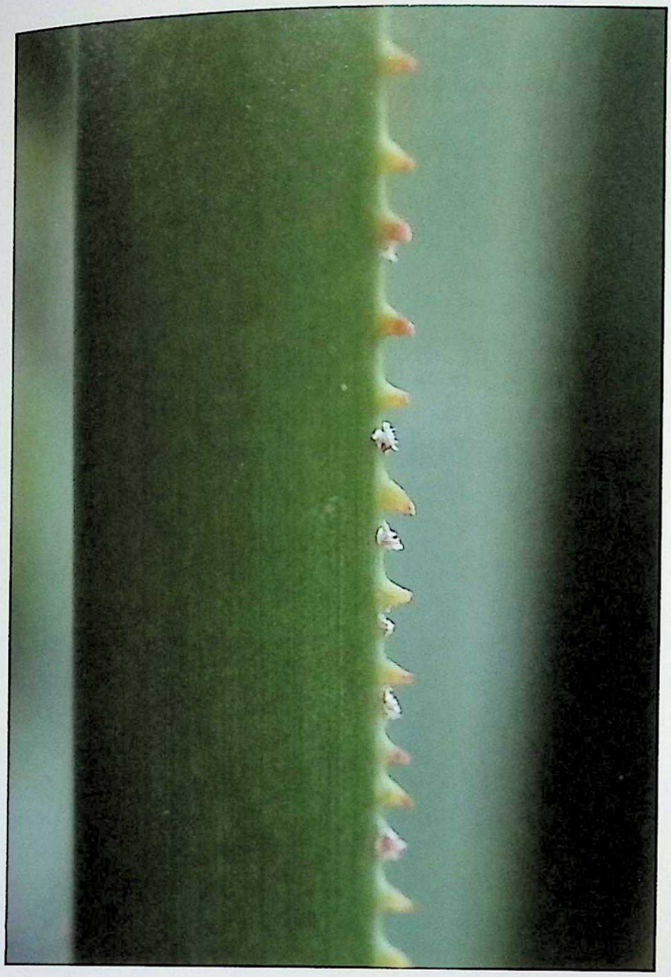
General use

Saw palmetto is used by natural health practitioners to treat a variety of ailments in men and women, such as testicular inflammation, urinary tract inflammation, coughs, and respiratory congestion. It is also used to strengthen the thyroid gland, balance the metabolism, stimulate appetite, and aid digestion. Most of the evidence supporting these uses is anecdotal and has not been proven by controlled clinical trials.

Early and numerous clinical trials have reported the effectiveness of saw palmetto in treating irritable bladder and urinary problems in men with benign prostate hyperplasia (BPH), a non-cancerous enlargement of the prostate gland. An analysis in 2002 of 21 trials testing the effectiveness of saw palmetto extract in treating BPH symptoms found "mild to moderate" improvement. The trials involved more than 3,000 men. Saw palmetto extract in dosages of 320mg daily

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri



Saw palmetto. *(© Florida Images / Alamy)*

has been shown to be effective in treating mild cases of BPH, according to a 2006 report in *Better Nutrition*.

BPH produces a swelling of the prostate gland that obstructs the urethra. This condition causes painful urination, reduced urine flow, difficulty starting or stopping the flow, dribbling after urination, and more frequent nighttime urination. Saw palmetto does not reduce **prostate enlargement**. Instead, it is thought to work in a variety of ways. First, it inhibits the conversion of testosterone into dihydrotestosterone (DHT). BPH is thought to be caused by an increase in testosterone to DHT. Second, saw palmetto is believed to interfere with the production of estrogen and progesterone, hormones associated with DHT production.

In addition to causing **pain** and embarrassment, BPH can lead to serious kidney problems if undiagnosed and left untreated. It is a common problem in men over the age of 40. Estimates are that 50–60% of all men develop BPH in their lifetimes. The Agency for Health Care Policy and Research estimates there are six million men between the ages of 50–79 who have BPH serious enough to require some type of therapy. Yet only half of them seek treatment from physicians. Health practitioners in both the allopathic and natural medicine communities recommend annual prostate exams for men over the age of 50 and an annual blood test that measures prostate specific antigen, a marker for **prostate cancer**.

A study published in the February 9, 2006, issue of the *New England Journal of Medicine* called into question the effectiveness of saw palmetto extract in the treatment of advanced BPH. Researchers reported that saw palmetto showed "no significant difference" in a standard measure of men's urinary tract health than in measurements of the placebo group. The federally funded study was part of a National Institutes of Health (NIH) effort to test alternative treatments. In the year-long study of 225 men over age 50, all diagnosed with advanced BPH, 112 received twice-daily dosages of 160 milligrams of saw palmetto extract, while a control group of 113 received a placebo pill formulated to mimic the taste and strong smell of the saw palmetto extract. Researchers speculate that the positive findings in earlier studies may have been due to patients' ability to detect that they were receiving placebo pills. Writing in 2006 in the *Johns Hopkins Health Alerts*, Hopkins professor, H. Ballentine Carter, contends: "The mixed results from clinical trials can be explained by differences in study design and among the groups of men that were studied."

In 2007, *The Herb Quarterly* reported on research findings in Milan, Italy, demonstrating that saw palmetto, in combination with a standard antibiotic, is an effective treatment for chronic bacterial prostatitis in patients who had not responded to a standard antibiotic alone. After six weeks, 64% of the men treated with the herb and antibiotic combination showed complete eradication of the infection-causing bacteria. When the combined treatment was continued for another six weeks, the total treatment success rate increased to 84%.

History

Saw palmetto berries have been used in American folk medicine for several hundred years as an aphrodisiac and for treating prostate problems. Native Americans in the southeast United States have used saw palmetto since the 1700s to treat male urinary problems. In the 1800s, medical botanist John Lloyd noted that animals that ate saw palmetto appeared healthier and fatter than other livestock. Early American settlers noticed the same effects and used the juice from saw palmetto berries to gain weight, to improve general disposition, as a sedative, and to promote reproductive health.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

In the United States, the medicinal uses of saw palmetto were first documented in 1879 by J. B. Read, a physician in Savannah, Georgia, who published a paper on the medicinal benefits of the herb in the April 1879 issue of the *American Journal of Pharmacy*. He found the herb useful in treating a wide range of conditions. "By its peculiar soothing power on the mucous membrane it induces sleep, relieves the most troublesome coughs, promotes expectoration, improves digestion, and increases fat, flesh and strength. Its sedative and diuretic properties are remarkable," Read wrote. "Considering the great and diversified power of the saw palmetto as a therapeutic agent, it seems strange that it should have so long escaped the notice of the medical profession."

A pungent tea made from saw palmetto berries was commonly used in the early 1900s to treat prostate enlargement and urinary tract **infections**. It was also used in men to increase sperm production and sex drive, although these uses have been discounted in the 2000s. One of the first published medical recommendations that saw palmetto was effective in treating prostate problems appeared in the 1926 edition of *United States Dispensatory*. In the late 1920s, the use of medicinal plants, including saw palmetto, began to decline in the United States, while at the same time, their use was on the rise in Europe.

Preparations

People taking saw palmetto should use only standardized extracts that contain 85–95% fatty acids and sterols. Dosages vary depending on the type of saw palmetto used. A typical dose is 320 mg per day of standardized extract or 1–2 g per day of whole berries that have been dried and ground. It may take up to four weeks of use before beneficial effects are seen. In late 1999, the Web-based independent consumer organization ConsumerLab.com tested 27 leading brands of saw palmetto for fatty acid and sterol content. Ten of the brands contained less than the minimum recommended level of 85% fatty acids and sterols. The 17 brands that passed the test were listed on the organization's Web site, as of early 2008.

Precautions

A case of probable saw palmetto-induced acute **hepatitis** and **pancreatitis** was reported in 2006 in *Southern Medical Journal*. A 55-year-old reformed alcoholic who had been taking saw palmetto intermittently for a four-year period to treat BPH, experienced severe pain, **nausea**, and **vomiting**. According to the report, the patient responded clinically and biochemically to withdrawal of saw palmetto. The symptoms returned when saw palmetto was again administered. The case illustrates the importance of patients revealing details of the use of any herbal supplements as an important part of any complete medical history.

Saw palmetto should be used only under a doctor's supervision by people with prostate **cancer**, **breast cancer**, or any sex hormone related diseases. Although the effects of saw palmetto on a fetus are unknown, pregnant women are advised not to take saw palmetto. Saw palmetto can alter hormonal activity that could have an adverse effect on the fetus. Women taking birth control pills or estrogen replacement products should consult a physician before taking saw palmetto. Persons taking testosterone or other anabolic steroids should not take saw palmetto without first consulting their doctor.

Physicians who accept saw palmetto as an effective remedy for prostate problems nevertheless point out that it is not completely free of side effects. In rare cases, allergic reactions to saw palmetto have been reported. Symptoms include difficulty breathing, constriction of the throat, **hives**, and swelling of the lips, tongue, or face. Persons experiencing any of these symptoms should stop taking saw palmetto and seek immediate medical attention.

Side effects

Other reported minor side effects are rare. They include cramps, nausea, **diarrhea**, and **headache**.

Interactions

Saw palmetto may interfere with such hormone-related drugs as testosterone and estrogen replacements, including Premarin, Cenestin, Vivelle, Fempatch, and Climara. It may also interact with birth control pills, such as Triphasil, Ovral, Lo-Ovral, Nordette, Alesse, Demulen, and Ortho-Novum. Individuals on these types of medications should consult with their doctor before taking saw palmetto. There are no known restrictions on food, beverages, or physical activity while taking saw palmetto.

Several herbs and minerals have been used in conjunction with saw palmetto in treating BPH. A 1996 European study showed positive results in treating patients with a daily dose of 320 mg of saw palmetto extract and 240 mg of **nettle** root extract. Many alternative health practitioners also recommend saw palmetto be used in combination with the herb pygeum africanung, pumpkin seeds, **zinc**, **flaxseed** oil, certain **amino acids**, **antioxidants**, and **diets** high

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Anabolic steroids—A group of mostly synthetic hormones sometimes taken by athletes to temporarily increase muscle size.

Aphrodisiac—Any substance that excites sexual desire.

Estrogen—A hormone that stimulates development of female secondary sex characteristics.

Hyperplasia—Enlargement of a part of the body, such as the prostate gland, due to an abnormal increase in the number of its cells.

Placebo—An inert or innocuous substance used in controlled experiments intended to test the efficacy of another substance.

Progesterone—A steroid hormone that is a biological precursor to corticoid (another steroid hormone) and androgen (a male sex hormone).

Testosterone—A male hormone produced in the testes or made synthetically that is responsible for male secondary sex characteristics.

Urethra—The canal that carries urine from the bladder.

in protein and soy products. Factors that can impair the effectiveness of saw palmetto include beer, cigarette smoke, and some chemical pesticides used on fruit and vegetables. Some physicians recommend using saw palmetto in addition to a prescription medicine, such as Proscar, Hytrin, or Cardura.

Resources

PERIODICALS

Carter, H. Ballentine. "Saw Palmetto Losing Ground" *Johns Hopkins Health Alerts,* March 15, 2007. www.johnshopkinshealthalerts.com/alerts/prostate_disorders/JohnsHopkinsPrescriptionDrugsHealthAlert_681-1.html (February 29, 2008).

Castleman, Michael. "A New Use for Saw Palmetto." *The Herb Quarterly* (Winter 2007): 11.

Helmer, Jodi. "Saw Palmeto." *Better Nutrition* 68, no. 6 (June 2006).

Jibrin, Ismaila, et al. "Saw Palmetto-induced Pancreatitis." *Southern Medical Journal* 99, no. 6 (June 2006): 611–612.

"Saw Palmetto Shows No Benefit for Enlarged Prostate." *Tufts University Health & Nutrition Letter* 24, no. 3 (May 2006).

Seppa, Nathan. "Saw Palmetto Flunks Prostate Exam." *Science News* 169, no. 8 (February 25, 2006): 126–126.

Ken R. Wells
Clare Hanrahan

Scabies

Definition

Scabies, also known as *Sarcoptic acariasis,* is a contagious, parasitic skin infection caused by a tiny mite (*Sarcoptes scabiei*).

Description

Scabies is caused by a tiny, 0.3 mm-long, parasitic insect called a mite. When a human comes into contact with the female mite, the mite burrows under the skin, laying eggs along the lines of its burrow. These eggs hatch, and the resulting offspring rise to the surface of the skin, mate, and repeat the cycle either within the skin of the original host, or within the skin of its next victim, causing red lesions.

The intense **itching**, or pruritus, that is almost always caused by scabies is due to a reaction within the skin to the feces of the mite. The first time someone is infected with scabies, he or she may not notice any itching for four to six weeks. With subsequent **infections**, the itchiness will begin within hours of picking up the first mite.

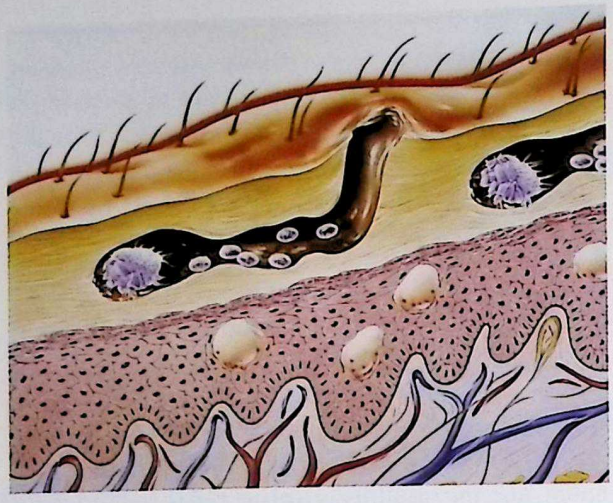
Causes and symptoms

Scabies is most common among people who live in overcrowded conditions, and whose ability to practice good hygiene is limited. Scabies can be passed between people by close skin contact. Although the mites can only live away from human skin for about three days, sharing clothing or bedclothes can pass scabies among family members or close contacts. In May 2002, the Centers for Disease Control (CDC) included scabies in

Scabies, an itchy condition of the skin caused by a tiny mite (Sarcoptes scabiei). *(© Medical-on-Line / Alamy)*

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri



Scabies mites burrowing in the top layer (epidermis) of human skin. *(John Bavosi / Photo Researchers, Inc.)*

its updated guidelines for the treatment of sexually transmitted diseases.

Mite burrows within the skin are seen as winding, slightly raised gray lines along a person's skin. The female mite may be found at one end of the burrow, as a tiny pearl-like bump underneath the skin. Because of the intense itching, burrows may be obscured by scratch marks left by the patient. The most common locations for burrows include the sides of the fingers, between the fingers, the top of the wrists, around the elbows and armpits, around the nipples of the breasts in women, in the genitalia of men, around the waist (beltline), and on the lower part of the buttocks. Babies may have burrows on the soles of their feet, palms of their hands, and faces. The itching from scabies becomes worse after a hot shower and at night. Scratching, however, seems to serve some purpose in scabies, as the mites are apparently often inadvertently removed. Most infestations with scabies are caused by no more than 15 mites altogether.

Infestation with huge numbers of mites (on the order of thousands to millions) occurs when an individual does not scratch, or when an individual has a weakened immune system. These patients include those who live in institutions; are mentally retarded, or physically infirm; have other diseases which affect the amount of sensation they have in their skin (leprosy or syringomyelia); have **leukemia** or diabetes; are taking medications which lower their immune response (**cancer** chemotherapy, drugs given after organ transplantation); or have other diseases which lower their immune response (such as acquired immunodeficiency syndrome or **AIDS**). This form of scabies, with its major infestation, is referred to as crusted scabies or Norwegian scabies. Infected patients have thickened, crusty areas all over their bodies, including over the scalp. Their skin appears scaly, and their fingernails may be thickened and horny.

KEY TERMS

Mite—An insect parasite belonging to the order Acarina. The organism that causes scabies is a mite.

Pruritus—An unpleasant itching sensation. Scabies is characterized by intense pruritus.

Topical—A type of medication applied to the skin or body surface.

Diagnosis

Diagnosis can be made simply by observing the characteristic burrows of the mites causing scabies. A sterilized needle can be used to explore the pearly bump at the end of a burrow, remove its contents, and place it on a slide to be examined. The mite itself may then be identified under a microscope.

Occasionally, a type of mite carried on dogs (*Sarcoptes scabiei var. canis*) may infect humans. These mites cannot survive for very long on humans, however, so the infection is less severe.

Treatment

A paste made from two herbs, **neem** (*Azadirachta indica*) and **turmeric** (*Curcuma longa,*) applied to the affected area daily for 15 days has been found to be effective in treating scabies.

Allopathic treatment

Several types of lotions (usually containing 5% permethrin) can be applied to the body, and left on for 12–24 hours. One topical application is usually sufficient, although the scabicide may be reapplied after a week if mites remain. Preparations containing lindane are no longer recommended for treating scabies as of 2003 because of the potential for damage to the nervous system. Itching can be lessened by the use of calamine lotion or antihistamine medications.

In addition to topical medications, the doctor may prescribe oral ivermectin. Ivermectin is a drug that was originally developed for veterinary practice as a broad-spectrum antiparasite agent. Studies done in humans, however, have found that ivermectin is as safe and effective as topical medications for treating scabies. A study published in 2003 reported that

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

ivermectin is safe for people in high-risk categories, including those with compromised immune systems.

Expected results

The prognosis for complete recovery from scabies infestation is excellent. In patients with weak immune systems, the biggest danger is that the areas of skin involved with scabies will become secondarily infected with bacteria.

Prevention

Good hygiene is essential in the prevention of scabies. When a member of a household is diagnosed with scabies, all that person's recently worn clothing and bedding should be washed in very hot water. Extensive cleaning of the household, however, is not necessary because the mite does not live long away from the human body.

Resources

BOOKS

Darmstadt, Gary L., and Al Lane. "Arthropod Bites and Infestations." In *Nelson Textbook of Pediatrics*, edited by Richard Behrman. Philadelphia: W.B. Saunders Co., 1996.

Maguire, James H. "Ectoparasite Infestations and Arthropod Bites and Stings." In *Harrison's Principles of Internal Medicine*, edited by Anthony S. Fauci, et al. New York: McGraw–Hill, 1998.

"Scabies (The Itch)." Section 10, Chapter 114 in *The Merck Manual of Diagnosis and Therapy*, edited by Mark H. Beers, MD, and Robert Berkow, MD. Whitehouse Station, NJ: Merck Research Laboratories, 2002.

Stoffman, Phyllis. *The Family Guide to Preventing and Treating 100 Infectious Diseases*. New York: John Wiley and Sons, Inc., 1995.

PERIODICALS

Burroughs, R. F., and D. M. Elston. "What's Eating You? Canine Scabies." *Cutis* 72 (August 2003): 107–109.

Burstein, G. R., and K. A. Workowski. "Sexually Transmitted Diseases Treatment Guidelines." *Current Opinion in Pediatrics* 15 (August 2003): 391–397.

Fawcett, R. S. "Ivermectin Use in Scabies." *American Family Physician* 68 (September 15, 2003): 1089–1092.

Santoro, A. F., M. A. Rezac, and J. B. Lee. "Current Trend in Ivermectin Usage for Scabies." *Journal of Drugs in Dermatology* 2 (August 2003): 397–401.

ORGANIZATIONS

American Academy of Dermatology (AAD). 930 East Woodfield Road, Schaumburg, IL 60173. (847) 330-0230. http://www.aad.org.

144267

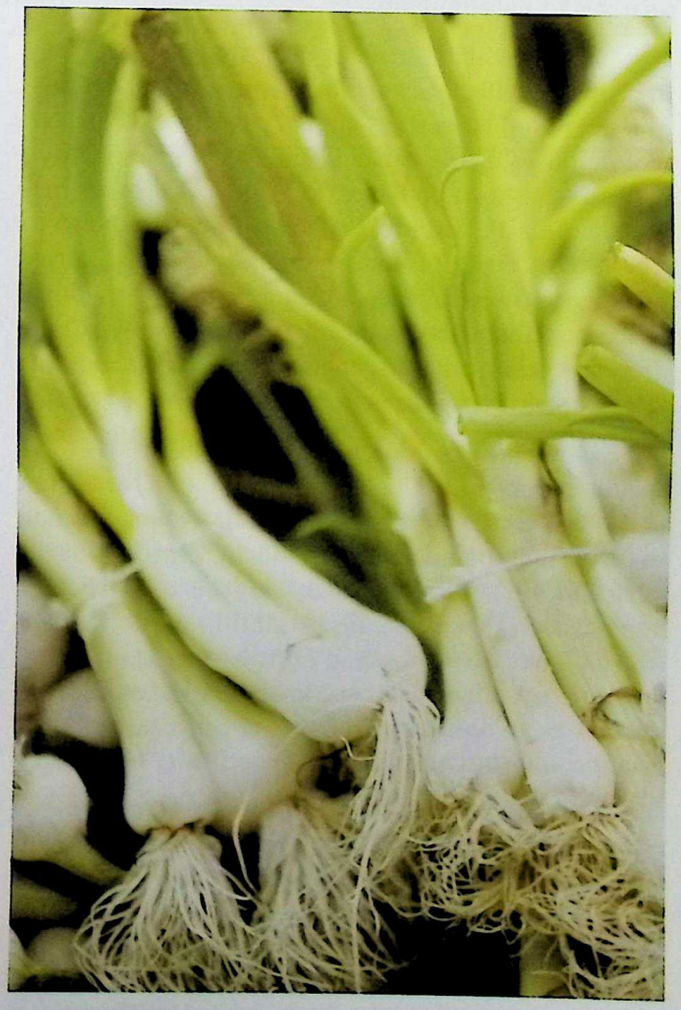
Kathleen D. Wright
Rebecca J. Frey, PhD

Scallion

Description

A variety of onion, the scallion (*Allii fistulosi*) is a pointy-leafed perennial that can reach about 20 inches in height. The herb has been a popular remedy in Asian folk medicine for thousands of years, having been first described about 2,000 years ago in the Chinese herbal classic *Shen Nong Ben Cao Jing*. The plant, which flourishes in warm climates, is native to Asia but has been found growing in many parts of the world.

While the scallion's fresh bulb is the part that is most often used as a drug, the entire plant is believed to have medicinal properties. Scallion, which belongs to the Liliaceae family, is sometimes called green onion, spring onion, Welsh onion, or Japanese bunching onion. The scallion bulb is called *Cong Bai* in Chinese, and the root of the scallion is called *Cong Xu*.



Scallions. *(© blickwinkel / Alamy)*

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Antioxidant—An agent that helps to protect cells from damage caused by free radicals, the destructive fragments of oxygen produced as a byproduct during normal metabolic processes.

Atherosclerosis—Narrowing and hardening of the arteries due to plaque buildup.

Carbuncle—A Staphylococcal skin infection that affects the hair follicles. The term may also be used to refer to a group of boils.

General use

While not approved by the FDA or widely used by Western herbalists, scallion is believed by Eastern herbalists to possess a number of important properties. Often used to treat the common cold, it is also believed to fight fungal and bacterial infections and to cause or increase perspiration. The herb may also act as a metabolic stimulant.

Because scallion has not been studied extensively in people, its effectiveness is based mainly on the results of animal and laboratory studies as well as its ancient reputation as a folk remedy. In a 1999 investigation, scallion was shown to block the growth of several types of fungi. In a 1998 study, scallion extract was shown to inhibit the activity of the *Aspergillus niger* and *Aspergillus flavus* fungi. In a 1985 Chinese study of scallion's antibacterial properties, the herb was shown to be effective against microorganisms such as *Pseudomonas aeruginosa* and *Micrococcus luteus*.

Exactly how scallion works is unknown. Its therapeutic effects (as well as its pungent flavor) are often attributed to the herb's volatile oils, which include sulfurous compounds such as allicin, dipropyl disulfide, and allyl sulfide. Allicin may be of particular importance. This agent, also found in **garlic** (*Allium sativum*), has been shown to fight bacteria and fungi, help prevent atherosclerosis, lower **cholesterol** levels, and act as an antioxidant. Other constituents of scallion include starch, sugars, cellulose, fatty acids, pectin, and vitamins A and C.

In the philosophy of Chinese folk medicine in which diseases are often believed to occur due to disruptions in the flow of bodily energy, scallion is considered warm and acrid. The whitish bulb of the scallion, called *Cong Bai* by Chinese herbalists, is mainly used to treat the common cold. Often combined with other herbs, it may be used to shorten the duration of a cold or alleviate symptoms such as runny nose, fever and **chills**, nasal congestion, and **headache**. It is also recommended for **diarrhea**, stomachache, abdominal bloating, earache, mastitis (breast inflammation), pinworms, kidney stones, carbuncles, urinary difficulties, and sores or abscesses. In a more general sense, the bulb is believed to improve digestion, remove impurities from the body, and restore vital functions.

While the bulb of the scallion is usually favored, other parts of the plant have been used to treat a long list of maladies. The roots, called *Cong Xu* in Chinese herbalism, are sometimes recommended for cold-related headaches, throat sores, and **frostbite**. The leaves are employed to treat cold symptoms, carbuncles, **stroke**, and traumatic injuries. Scallion seeds are reputed to enhance vision and improve kidney function. They may also be used to treat dizziness as well as **impotence** due to kidney problems, among other health complaints. Juice derived from the bulb (or from the whole plant) is thought to detoxify the body and thin the blood. It may also be used for **nosebleeds**, headaches, carbuncles, hematuria (the presence of blood in the urine), internal parasites, and traumatic injuries.

Some of the more intriguing research related to scallion has been conducted in China and Japan. One Japanese investigation focused on scallion and the common cold. In the study, which involved 107 people suffering from colds, equal amounts (15 g) of scallion bulb and ginger were combined with a few grams of salt. The mixture was applied externally to a number of areas on the body, including the back, chest, palms, and soles of the feet. All of the study participants treated with the scallion mixture recovered in a day or two. One application of scallion was usually sufficient to achieve results, though a few people in the study required two treatments. In several instances, the mixture reduced **fever** completely within half an hour.

An enema prepared by combining scallion, **ginger** juice, and **pinellia** root may be helpful in treating acute mastitis (breast inflammation), according to one study.

Preparations

The optimum dosage of scallion has not been established with any certainty. When scallion bulb is used internally, the dosage is typically 9–15 g a day. A preparation can be made by boiling scallion in water or wine. The bulb, mashed, can also be applied externally to an affected area of skin.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

When other parts of scallion (such as the leaves, roots, and seeds) are used internally, daily dosage is 3–15 g. Like the bulbs, scallion's leaves and roots may be applied externally.

Tablets containing scallion in combinations are also available.

Scallion may be ingested as a food. The herb is a favorite ingredient in Chinese cooking, where it is used in raw and cooked form.

Because scallion has been recommended for a variety of purposes and can be used internally and externally, consumers are advised to consult a doctor experienced in the use of alternative remedies or Chinese medicine to determine proper dosage.

Precautions

Scallion is not known to be harmful when taken in recommended dosages. It is important to note that the long-term effects of taking the herb (in any amount) have not been investigated. Due to lack of sufficient medical study, scallion should be used with caution in children, women who are pregnant or breast-feeding, and people with liver or kidney disease.

The volatile oils present in the herb may cause skin irritation or **eczema** in susceptible people. Because scallion can increase sweating, people who are perspiring heavily should avoid this herb.

Side effects

When taken in recommended dosages, scallion is not associated with any bothersome or significant side effects.

Interactions

Scallion should not be combined with honey, according to some practitioners of Chinese folk medicine. When used internally, scallion has been mixed with ginger, white pepper, and pig's feet without apparent harm. When used externally, scallion has been safely combined with a variety of other herbs, including ginger and powdered **fennel** seed.

Resources

BOOKS

Editors of Time-Life Books. *The Drug and Natural Medicine Advisor*. Alexandria, Va.: Time-Life Books, 1997.

PERIODICALS

Abramovitz, D., et al. "Allicin-Induced Decrease in Formation of Fatty Streaks (Atherosclerosis) in Mice Fed a Cholesterol-Rich Diet." *Coronary Artery Disease* 10, no. 7 (1999): 515–9.

Chen, H. C., M. D. Chang, and T. J. Chang. "Antibacterial Properties of Some Spice Plants Before and After Heat Treatment." *Chung-Hua Min Kuo Wei Sheng Wu Chi Mien I Hsueh Tsa Chih* 18, no. 3 (1985): 190–5.

Eilat, S., et al. "Alteration of Lipid Profile in Hyperlipidemic Rabbits by Allicin, an Active Constituent of Garlic." *Coronary Artery Disease* 6, no. 12 (1995): 985–90.

Prasad, K., et al. "Antioxidant Activity of Allicin, an Active Principle in Garlic." *Mol Cell Biochemistry* 148, no. 2 (1995): 183–9.

Yin, M. C. and W. S. Cheng. "Inhibition of Aspergillus Niger and Aspergillus Flavus by Some Herbs and Spices." *Journal of Food Protection* 61, no. 1 (1998): 123–5.

Yin, M. C. and S. M. Tsao. "Inhibitory Effect of Seven Allium Plants upon Three Aspergillus Species." *International Journal of Food Microbiology* 49, no. 1-2 (1999): 49–56.

ORGANIZATIONS

American Botanical Council. P. O. Box 144345, Austin, TX 78714-4345. http://www.herbalgram.org.

OTHER

Internet Grateful Med: Medline. http://igm.nlm.nih.gov.

Greg Annussek

Scarlet fever

Definition

Scarlet **fever** is an infection caused by a strain of the streptococcus bacterium. It can be transmitted through the air or by physical contact and primarily affects children between four and eight years of age. In temperate climates, scarlet fever is most common during the late fall, winter, and early spring.

Scarlet fever is characterized by a **sore throat**, a fever of 103–104°F (39.4–40°C), and a sandpaper-like rash on reddened skin. If scarlet fever is untreated, serious complications can develop, such as **rheumatic fever** (a **heart disease**) or kidney inflammation (glomerulonephritis).

Description

Scarlet fever, or scarlatina, gets its name from the characteristic flush of the patient's skin, especially on the cheeks. Fever and sluggishness accompany a sore throat and raised rash that progressively covers much of the body. Symptoms usually begin within two to five days after a person is exposed. The fever usually subsides within a few days, and recovery is complete by two weeks. After the fever is gone, the skin on the

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Scarlet fever rash caused by bacterium streptococcus. *(Biophoto Associates / Photo Researchers, Inc.)*

face and body flakes, with the skin on the palms of the hands and soles of the feet peeling more dramatically.

Scarlet fever is highly contagious when the patient is in the early stages and is not being treated with antibiotics. It is spread by **sneezing**, coughing, or direct contact with an infected person. Early in the twentieth century, severe scarlet fever epidemics were common. Today the disease is rare, partially because of the availability of antibiotics. However, antibiotics are not the entire reason, since the decline began before their widespread use. One theory is that the strain of bacteria that causes scarlet fever has become weaker over time.

Causes and symptoms

Scarlet fever is caused by Group A streptococcal bacteria (*Streptococcus pyogenes*). In addition to causing scarlet fever, Group A streptococci bacteria cause many different illnesses, such as **strep throat**, wound or skin **infections**, **pneumonia**, serious **kidney infections**, and **toxic shock syndrome**. The strain of streptococcus that causes scarlet fever is slightly different from the strain that causes most strep throats. The scarlet fever strain produces an erythrogenic toxin, which is what causes the skin to turn red.

The main symptoms and signs of scarlet fever are fever, sluggishness, sore throat, and a bumpy rash that blanches (turns white) when it's pressed. The rash appears first on the upper chest and spreads to the neck, abdomen, legs, arms, and in folds of skin such as under the arm or in the groin. The skin around the mouth tends to be pale, while the cheeks are flushed. In children, the disease causes a "strawberry tongue," in which inflamed bumps on the tongue rise above a bright red coating. Strawberry tongue is rarely seen in

KEY TERMS

Clindamycin—An antibiotic that can be used instead of penicillin.

Erythrogenic toxin—A toxin or agent produced by the scarlet fever-causing bacteria that causes the skin to turn red.

Erythromycin—An antibiotic that can be used instead of penicillin.

Glomerulonephritis—A serious inflammation of the kidneys that can be caused by streptococcal bacteria; a potential complication of untreated scarlet fever.

Pastia's lines—Red lines in the folds of the skin, especially in the armpit and groin, that are characteristic of scarlet fever.

Penicillin—An antibiotic that is used to treat bacterial infections.

Procaine penicillin—An injectable form of penicillin that contains an anesthetic to reduce the pain of the injection.

Rheumatic fever—A heart disease that is a complication of a strep infection.

Sheep blood agar plate—A petri dish filled with a nutrient gel containing red blood cells that is used to detect the presence of streptococcal bacteria in a throat culture. Streptococcal bacteria will break down the red blood cells, leaving a clear spot around the bacterial colony.

Strawberry tongue—A sign of scarlet fever in which the tongue appears to have a red coating with large raised bumps.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

adults. Finally, dark red lines (called Pastia's lines) may appear in the creases of skin folds.

Diagnosis

A medical practitioner must diagnose and treat scarlet fever. The doctor notes the symptoms and eliminates the possibility of other diseases. **Measles** is a viral infection that is also associated with a fever and rash. However, scarlet fever can be distinguished from measles by the quality of the rash, the presence of a sore throat in scarlet fever, and the absence of the severe eye inflammation and severe runny nose that usually accompany measles.

Because scarlet fever may begin with a sore throat, the doctor will first determine if the problem is bacterial or viral in nature by checking for specific symptoms. For example, inflammation of the lymph nodes in the neck is typical in strep infections but not viral infections. On the other hand, **cough**, **laryngitis**, and stuffy nose tend to be associated with viral infections rather than strep infections.

Laboratory tests are necessary to make a definitive diagnosis of a strep infection and to distinguish a strep throat from a viral sore throat. One test that can be performed is a blood cell count. Bacterial infections are associated with an elevated white blood cell count. In viral infections, the white blood cell count is generally below normal. A throat culture can distinguish between a strep infection and a viral infection. A throat swab from the infected person is brushed over a nutrient gel containing red blood cells (a sheep blood agar plate) and incubated overnight. If streptococcal bacteria are present in the sample, they will break down the red blood cells and leave a clear zone in the gel surrounding the bacteria.

The doctor will also distinguish between a strep throat and scarlet fever. In a strep infection, the throat is sore and appears beefy and red. White spots appear on the tonsils. Lymph nodes under the jaw line may swell and become tender. These symptoms may or may not be present with scarlet fever. The main feature that distinguishes scarlet fever from a strep throat is the presence of the sandpapery, red rash.

Treatment

Because of the nature of the infection and the danger of serious complications, scarlet fever cannot be treated solely with alternative therapies. A course of antibiotics and treatment by a physician is imperative. However, alternative therapies may be used to relieve the symptoms of fever and sore throat.

Fever

For fever, especially in children, there are some alternative treatments. Naturopathy recommends sponging with tepid water if the fever rises over 102°F (38.9°C). Rest and plenty of water are advised.

Homeopathy treats the specific type of fever, so it will be necessary to consult with a homeopath to determine the correct remedy for the patient. Some common homeopathic remedies for fever are:

- *Aconite* 6c at the onset of fever that is accompanied by thirst, chills, dry burning skin, and restlessness.
- *Belladonna* 6c for high fever with dry burning skin, red face, dilated pupils, and swollen glands.
- *Arsenicum album* 6c for patients who are restless and agitated, alternately hot and cold, thirsty, and patients whose fever is worse after midnight.
- *Byronia* 6c for the patient who is shivery and sweating, very thirsty at long intervals, and having headaches and pain.
- *Ferrum phosphoricum* (iron phosphate) 6c for a mild fever of slow onset accompanied by frequent bouts of sweating, shivering, and headaches.

Western herbalism may be used to treat fever, but treatment requires a qualified medical herbalist. The herbalist may recommend a bath with tepid infusions of limeflower, elderflower, **yarrow**, or German **chamomile**. Herbs such as **catnip**, **hyssop**, **lemon balm**, and vervain can lower the temperature and increase perspiration. German chamomile, **lavender**, and limeflower promote **relaxation**, and **echinacea** and **garlic** fight infection.

Chinese herbs in combinations can treat specific patterns of fever. They can also be used to balance the energies, specifically the yin (cool and moist) after the illness subsides.

Sore throat

Some recommended treatments for sore throat are:

- Aromatherapy, in which the patient gargles with water and very small amounts of geranium or tea tree essential oils. A massage using diluted eucalyptus oil may also be helpful.
- Naturopathy may suggest fasting to eliminate toxins and the use of garlic to fight infection. Naturopaths will also recommend fruit juices high in vitamin C, especially citrus fruit juices, to soothe irritation.
- Hydrotherapy, in which water is utilized to restore health, uses humidifiers to prevent the irritation of a sore throat by dry air. It may also recommend using a

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

cold abdominal pack and throat compress to stimulate both circulation and the immune system.

- Western herbalism will recommend gargling with an infusion of antiseptic herbs such as calendula or sage, and may use echinacea to fight infection.

Allopathic treatment

Although the symptoms of scarlet fever often clear within a few days, the patient should receive antibiotic treatment to reduce the severity of symptoms, prevent complications, and keep from spreading the infection to others. Antibiotics may be taken either orally or by injection. After a patient has been on antibiotics for 24 hours, he or she is no longer contagious. The rash itself is not contagious. Antibiotic treatment will shorten the course of the illness in small children but may not do so in adolescents or adults. Nevertheless, a full course of treatment with antibiotics is important for preventing complications.

Since penicillin injections are painful, oral penicillin may be preferable. If the patient is unable to tolerate penicillin, alternative antibiotics such as erythromycin or clindamycin may be substituted. The patient must take the entire course of medication—usually 10 days—for the therapy to be effective and to ensure that the bacteria have been killed. Because symptoms subside quickly, there is a temptation to stop therapy prematurely. However, not completing the medication increases the risk of developing rheumatic fever and kidney inflammation. If the patient is considered too unreliable to take all of the pills or is unable to take oral medication, daily injections of procaine penicillin can be given in the hip or thigh muscle.

After the contagious period has passed, the patient does not need to be isolated. Bed rest is not necessary. Aspirin or Tylenol (acetaminophen) may be given for fever or **pain** relief.

Expected results

If the patient is treated promptly with antibiotics, full recovery can be expected. Patients who have had scarlet fever develop immunity to the disease and cannot catch it again. However, about 10% of children don't respond to an initial antibiotic treatment, so it may be necessary for a second throat culture and the use of a different antibiotic.

Prevention

Although scarlet fever is only contagious before treatment with antibiotics is begun, it is wise to avoid exposure to children at any stage of the disease. Doing so will help prevent the spread of scarlet fever.

Resources

BOOKS

Berkow, Robert M.D., ed. *The Merck Manual of Diagnosis and Therapy*. 16th ed. Rahway, NJ: Merck, 1992.

Driscoll, John. "Scarlet Fever." In *The Columbia University College of Physicians and Surgeons Complete Home Medical Guide*. 3rd rev. ed. New York: Crown Publishers, 1995.

Woodham, Anne, and David Peters, M.D. *Encyclopedia of Healing Therapies*. New York: DK Pub., 1997.

Wyngaarden, James B., Lloyd H. Smith, and J. Claude Bennett, eds. *Cecil Textbook of Medicine*. 19th ed. New York: W.B. Saunders Company, 1992.

PERIODICALS

Gregory, Tanya. "Scarlet Fever and Its Relatives." *Patient Care* (June 15, 1998): 109.

Schmitt, B. D. "Scarlet Fever" *Clinical Reference Systems* (July 1, 1999): 1293.

Amy Cooper

Schisandra

Description

Schisandra (*Schisandra chinensis*) is an aromatic, woody vine that is native to northern and northeastern China. It is predominately cultivated in the Chinese provinces Jilin, Hebei, Heilongjiang, and Lianoning. Schisandra is also found in Russia and Korea.

The schisandra plant reaches a height of up to 25 ft (7.5 m) and has pink flowers. Schisandra fruit is fully ripened in the fall and appears as numerous spikes of tiny, bright red berries. The berries have sweet, sour, hot, salty, and bitter tastes—hence the Chinese name for schisandra, "Wu Wei Zi" (five-flavored herb). Other names for schisandra include schizandra, five taste fruit, and herb of five tastes.

Constituents and bioactivities

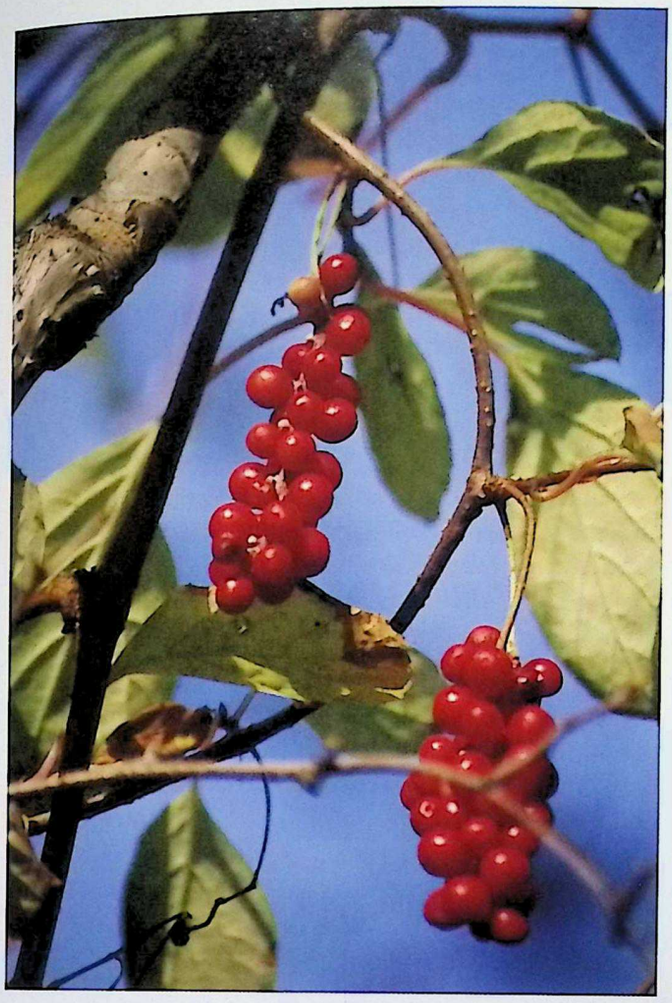
Schisandra fruit contains a wide variety of compounds with biological activities. Constituents of schisandra include:

- acids
- lignans (deoxyschizandrin, gomisins, pregomisin, schizandrin, and others)
- phytosterols (beta-sitosterol and stigmasterol)
- vitamins C and E
- volatile oils

Schisandra fruit contains at least 30 different lignans. Lignans, which are sometimes described as

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri



Schisandra, used in traditional medicine as a remedy for irritable bowel syndrome and other maladies. *(Dr. Nick Kurzenko / Photo Researchers, Inc.)*

KEY TERMS

Adaptogen—A medicine that increases the body's ability to fight disease and any stress it encounters including those from chemical, environmental, mental, and physical sources.

Lignans—Chemicals found in plants that have estrogen-like, liver-protective, and anti-inflammatory activities.

Phytosterols—Plant-based oils that appear to have a cholesterol-lowering effect.

Tonic—A preparation or medicine that invigorates, strengthens, or restores tone to tissues. Schisandra is considered to be an overall tonic that is good for any organ or system of the body.

Volatile oil—The fragrant oil that can be obtained from a plant by distillation. The word "volatile" means that the oil evaporates in the open air.

phytoestrogens (plant-derived compounds with estrogen-like activity), are known to have liver-protective (anti-hepatotoxic) action and to regenerate damaged liver tissue. In addition, lignans interfere with a compound called platelet activating factor, which promotes inflammation. The results of a study in rats showed that a lignan-enriched extract of *Schisandra chinensis* protected against liver damage from either aflatoxin (a toxin produced by a mold) or cadmium chloride (a toxic chemical). The liver-protective function is partly due to schisandra's antioxidant activity. However, treating the rats with **vitamin E**, an antioxidant, did not protect them from liver damage. This indicates that schisandra's liver-protective activity is not due to its vitamin E content. Schisandra increases liver function, which helps the body's metabolism become more efficient.

Research has shown that schisandra has adaptogenic properties, which means that it helps the body to fight disease and adapt to stresses from physical, mental, chemical, and environmental sources. Schisandra also has tonic (restoring tone to tissues), expectorant (promoting the clearing of lung mucus), and cough-suppressant (reducing coughing) activities. It stimulates the nervous system by increasing the speed of nervous responses, leading to quicker and stronger reflexes. Schisandra has been shown to stimulate breathing, decrease blood pressure, act as a vasodilator (causing blood vessels to dilate), improve blood circulation, improve heart function, strengthen uterine contractions, improve vision, normalize blood sugar levels, and assist in food digestion and absorption of nutrients. It can activate all major body systems.

General use

Schisandra is a Chinese tonic herb used in **traditional Chinese medicine** as a lung astringent and Kidney tonic. Historically, it was used to treat mental illness, night sweats, coughs, thirst, **insomnia**, chronic dysentery (bloody, mucusy **diarrhea**), premature ejaculation, and physical exhaustion. The Chinese consider it an energy tonic that can be used to restore lost vitality. Schisandra can improve overall health and increase energy levels.

Schisandra is an overall tonic that is used to treat the following conditions:

- Fluid imbalance. Because of its kidney tonic effect, schisandra is useful in treating thirst, night sweats,

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

excessive sweating, urinary incontinence, and the frequent urge to urinate.

- Circulatory disorders. Schisandra may be used to treat poor circulation and poor heart function.
- Intestinal disease. Schisandra has been used to treat diarrhea and dysentery.
- Fatigue. Schisandra may help to reduce fatigue, improve endurance, improve work performance, and build strength. It is recommended for persons who need high levels of energy, such as athletes.
- Liver disease. Schisandra is used to treat hepatitis and poor liver function. In one clinical study, schisandra successfully treated 76% of the patients with hepatitis. It has been shown to improve both virally and chemically induced hepatitis. More recently, schisandra has been found to protect the liver against the side effects of anti-Alzheimer's medications.
- Mental and emotional illness. Schisandra has been shown to improve mental clarity, concentration, and coordination. It reduces forgetfulness, irritability, and nervous exhaustion. Schisandra is used to treat stress and may be part of a useful treatment for depression.
- Respiratory disease and disorder. Schisandra is used to treat allergies. It treats respiratory symptoms such as shortness of breath, chronic cough, and wheezing.
- Sensory organ failure. Schisandra has been used to help improve failing sight and hearing. It enhances the sensation of touch.
- Sexual disorder. Schisandra tones the sexual organs of both men and women. It increases the production of sexual fluids, improves male sexual stamina, and treats premature ejaculation and low sex drive.
- Skin rash. Schisandra has been used to treat skin conditions, including hives and eczema.
- Sleep disorder. Because of its adaptogenic properties, schisandra can relieve insomnia and dream-disrupted sleep.
- Other. Schisandra counteracts respiratory paralysis caused by morphine overdose, and strengthens uterine contractions to promote healthy labor and childbirth.

Schisandra is one of nine herbs combined in a Chinese dietary supplement called Equiguard, which is given to support the functioning of the kidneys and prostate gland in men. A recent study indicates that Equiguard may be helpful in treating **prostate cancer** because it appears to prevent the **cancer** cells from forming new colonies.

Preparations

Only the fruit of schisandra is used for medicinal purposes. Schisandra berries are harvested when fully ripe and allowed to dry in the sun. Schisandra's dried fruit is used, and the herb is prepared in the form of powder, tincture (an alcoholic extract), and wine. It is also found, usually in combination with other herbs, in capsules, tea, decoction (a water extract). Schisandra may be found in Chinese herb shops or health food stores. Recommended doses of schisandra are 1.5–15 g of dried fruit daily, 2–4 ml of tincture three times daily, 1.5–6 g of powder daily, one to three cups of tea once daily, or 1.5 g in capsule form daily.

The decoction is prepared by boiling 5 g of crushed berries in 100 ml of water. This decoction is divided into three doses, which are taken over a 24-hour period. The tea is prepared by steeping 1–6 g of dried schisandra berries in one to three cups of boiling water.

For use as a general tonic in China, patients are advised to chew dried schisandra berries daily for 100 days. Skin conditions are usually treated with a medicinal wine formulation.

It may take several weeks for the energy-increasing effects of schisandra to be felt.

Precautions

Schisandra should not be used during **pregnancy** or in patients who are having trouble urinating.

Side effects

Schisandra is safe for long-term use; it has relatively few side effects. It has, however, been reported to cause upset stomach, **heartburn**, decreased appetite, and skin rash.

Interactions

Schisandra interacts with acetaminophen in a positive way. In a laboratory study, gomisin A, a lignan found in schisandra, offered some degree of liver protection to rats given doses of acetaminophen high enough to cause liver damage.

Schisandra has been reported to increase the effects of antidiabetic medications and anesthetics; it should therefore be discontinued before major surgery. Schisandra should not be taken together with terfenadine because it appears to increase the risk of cardiac arrhythmia as a side effect of this medication.

Schisandra is often used in Chinese herbal formulas as a harmonizing agent because it complements

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

and coordinates well with other herbs. Schisandra is often found in combination with **Korean ginseng** (*Panax ginseng*).

Resources

BOOK

Chevallier, Andrew. "Schisandra." In *The Encyclopedia of Medicinal Plants*. New York: DK Publishing, 1996.

PERIODICALS

Hsieh, T. C., X. Lu, J. Guo et al. "Effects of Herbal Preparation Equiguard on Hormone-Responsive and Hormone-Refractory Prostate Carcinoma Cells: Mechanistic Studies." *International Journal of Oncology* 20 (April 2002): 681-689.

Ip, Siu Po, et al. "Effect of a Lignan-Enriched Extract of Schisandra Chinensis on Aflatoxin B1 and Cadmium Chloride-Induced Hepatotoxicity in Rats." *Pharmacology & Toxicology*. 78 (1996): 413–416.

Pan, S. Y., Y. F. Han, P. R. Carlier, et al. "Schisandrin B Protects Against Tacrine- and Bis(7)-Tacrine-Induced Hepatotoxicity and Enhances Cognitive Function in Mice." *Planta Medica* 68 (March 2002): 217-220.

Schar, Douglas. "5 Cutting-Edge Superherbs." *Prevention*. 51 (December 1999): 110+.

ORGANIZATIONS

American College of Acupuncture and Oriental Medicine. 9100 Park West Drive, Houston, TX 77063. (800) 729-4456. www.acaom.edu.

American College of Traditional Chinese Medicine. 455 Arkansas Street, San Francisco, CA 94107. (415) 282-7600. www.actcm.edu.

OTHER

"Schisandra." *Healthnotes Online*. http://www.puritan.com/healthnotes/Herb/Schisandra.htm.

"Schizandra." *Planet Botanic*. http://www.planetbotanic.com/schizand.htm.

Belinda Rowland
Rebecca J. Frey, PhD

Schizophrenia

Definition

Schizophrenia is a psychotic disorder or group of disorders marked by disturbances in thinking, emotional responsiveness, and behavior. Schizophrenia is the most chronic and disabling of the severe mental disorders, associated with abnormalities of brain structure and function, disorganized speech and behavior, delusions, and hallucinations. It is considered a psychotic disorder or a psychosis.

Description

The term schizophrenia comes from two Greek words that mean "split mind." It was coined around 1908, by the Swiss doctor Eugen Bleuler, to describe the splitting apart of mental functions that he regarded as the central characteristic of schizophrenia. (Note that the splitting apart of mental functions in schizophrenia differs from the split personality of people with multiple personality disorder.)

Schizophrenic patients are typically unable to filter sensory stimuli and may have enhanced perceptions of sounds, colors, and other features of their environment. If untreated, most people diagnosed with schizophrenia gradually withdraw from interactions with other people, and lose their ability to take care of personal needs and grooming.

Although schizophrenia was described by doctors as far back as Hippocrates (500 B.C.), it is difficult to classify. Some psychiatrists prefer to identify schizophrenia as a group or family of disorders, rather than a single entity, because of the lack of agreement in classification, as well as the possibility that different subtypes of the disorder may eventually be shown to have different causes.

Stages of schizophrenia

The course of schizophrenia in adults can be divided into three phases or stages. In the acute phase, the patient has an overt loss of contact with reality (psychotic episode) that requires intervention and treatment. In the second or stabilization phase, the initial psychotic symptoms have been brought under control, but the patient is at risk for relapse if treatment is interrupted. In the third or maintenance phase, the patient is relatively stable and can be kept indefinitely on antipsychotic medications. Even in the maintenance phase, however, relapses are not unusual, and patients do not always return to full functioning.

The patient's first psychotic episode, in most cases, is preceded by a prodromal (warning) phase, with a variety of behaviors that may include angry outbursts, withdrawal from social activities, loss of attention to personal hygiene and grooming, anhedonia (loss of one's capacity for enjoyment), and other unusual behaviors. There is no typical pattern or course of the disorder following the first acute episode. About 70% of patients diagnosed with schizophrenia have a second psychotic breakdown within five to seven years after the first one. About 10% of patients recover from the first psychotic episode and never experience another episode. About 55% of patients have chronic symptoms, and the remaining individuals

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

have intermittent episodes over the course of their lives but can lead fairly normal lives otherwise.

Subtypes of schizophrenia

A standard professional reference, the fourth revised (2000) edition of *The Diagnostic and Statistical Manual of Mental Disorders* (*DSM-IV-TR*) categories the five subtypes of schizophrenia as follows.

PARANOID. The key feature of this subtype of schizophrenia is the combination of false beliefs (delusions) and hearing voices (auditory hallucinations), with relatively unaffected mood and cognitive functions (reasoning, judgment, and memory). The delusions of paranoid schizophrenics usually involve thoughts of being persecuted or harmed by others, or exaggerated opinions of their own importance, but may also reflect feelings of jealousy or excessive religiosity. The delusions are typically organized into a coherent framework. Paranoid schizophrenics function at a higher level than other subtypes but are at risk for suicidal or violent behavior under the influence of their delusions.

DISORGANIZED. Disorganized schizophrenia (formerly called hebephrenic schizophrenia) is marked by disorganized speech, thinking, and behavior, coupled with flat or inappropriate emotional responses to a situation (affect). The patient may act silly or withdraw socially to an extreme extent. Most patients in this category have weak personality structures prior to their initial acute psychotic episode.

CATATONIC. Catatonic schizophrenia is characterized by disturbances of movement that may include rigidity, stupor, agitation, bizarre posturing, and repetitive imitations of the movements or speech of other people. These patients are at risk for malnutrition, exhaustion, or self-injury. This subtype appears to be more common in non-Western countries than in Europe or North America. Catatonia as a symptom is most commonly associated with mood disorders.

UNDIFFERENTIATED. Patients in this category have the characteristic positive and negative symptoms of schizophrenia but do not meet the full criteria for the paranoid, disorganized, or catatonic subtypes.

RESIDUAL. Patients in this category have had at least one acute schizophrenic episode, continue to have some negative symptoms of schizophrenia, but do not have current psychotic symptoms, such as delusions and hallucinations. They may have negative symptoms, such as withdrawal from others, or mild forms of positive symptoms, which indicate that the disorder has not completely resolved.

Demographics

In the United States, Canada, and Western Europe, the sex ratio in schizophrenia is 1.4:1, with males being affected slightly more often than females. However, there is a significant gender difference in average age at onset; the average for males is between ages 18 and 25, whereas for women there are two peaks, one between ages 25 and 35 and a second rise in incidence after age 45. About 15% of all women who develop schizophrenia are diagnosed after age 35. In some women, the first symptoms of the disorder appear postpartum (after giving birth). Many women with schizophrenia are initially misdiagnosed as having **depression** or **bipolar disorder** because women with schizophrenia are likely to have more difficulties with emotional regulation than men with the disorder. In general, however, females have higher levels of functioning prior to symptom onset than males.

Schizophrenia is rarely diagnosed in pre-adolescent children, although case reports of patients as young as age five or six have been reported. Childhood schizophrenia is at the upper end of the spectrum of severity and shows a greater gender disparity. It affects one or two children in every 10,000; the male/female ratio is 2:1.

The incidence of schizophrenia in the United States appears to be uniform across racial and ethnic groups, with the exception of minority groups in urban neighborhoods in which they are a small proportion of the total population. A study done in the United Kingdom replicated U.S. findings: There are significantly higher rates of schizophrenia among racial minorities living in large cities. The rates of schizophrenia are highest in areas in which these minority groups form the smallest proportion of the local population. The British study included Africans, West Indians of African descent, and Asians.

The incidence of schizophrenia in most developed countries appears to be higher among people born in cities than among those born in rural areas. In addition, there appears to be a small historical/generational factor, with the incidence of schizophrenia gradually declining in later-born groups.

Schizophrenia is a leading cause of disability, not only in the United States, but in other developed countries around the world. The World Health Organization (WHO) counts schizophrenia in the world's ten leading causes of disability. According to the National Institute of Mental Health (NIMH), schizophrenia affects 1.1% of the American population over age 18. Other estimates run as high as 1.5% of the population. Schizophrenia is disproportionately costly to

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

society for reasons that go beyond the sheer number of people affected by the disorder. In the United States, patients with schizophrenia account for 2.5% of all healthcare costs.

In addition, the onset of the disorder typically occurs during a young person's last years of high school or their first years in college or the workforce; thus, it often destroys their long-term plans. According to the Federal Agency for Healthcare Research and Quality, 70 to 80% of people diagnosed with schizophrenia are either unemployed or underemployed (working in jobs well below their actual capabilities). Ten percent of Americans with permanent disabilities have schizophrenia, as well as 20 to 30% of the homeless population.

Causes and symptoms

Causes

Schizophrenia is considered the end result of a combination of genetic, biochemical, developmental, and environmental factors, some of which are still not completely understood. There is no known single cause of the disorder.

Researchers have known for many years that first-degree biological relatives of patients with schizophrenia have a 10% risk of developing the disorder, as compared with 1% in the general population. The monozygotic (identical) twin of a person with schizophrenia has a 40 to 50% risk. The fact that this risk is not higher, however, indicates that environmental as well as genetic factors are implicated in the development of schizophrenia.

Some specific regions on certain human chromosomes have been linked to schizophrenia. However, these regions tend to vary across ethnic groups. Scientists are inclined to think that the genetic factors underlying schizophrenia vary across different ethnic groups, so that it is highly unlikely that susceptibility to the disorder is determined by only one gene. Because of this assumption, schizophrenia is considered a polygenic disorder.

Research conducted by the National Institute of Mental Health (NIMH) in 2007 suggested that certain genes create an imbalance between the pathways mediating D2 and D1 dopamine receptors, increasing the risk for schizophrenia.

Other studies conducted by the NIMH have demonstrated the existence of a connection between two abnormalities of brain functioning in patients with schizophrenia. The researchers used radioactive tracers and positron emission tomography (PET) to show that reduced activity in a part of the brain called the prefrontal cortex was associated in the patients, but not in the control subjects, with abnormally elevated levels of dopamine (a chemical that transmits signals in the brain) in the striatum. High levels of dopamine are related to the delusions and hallucinations of psychotic episodes in schizophrenia. These findings suggest that treatment directed at the prefrontal cortex might be more effective than present antipsychotic medications, which essentially target dopamine levels without regard to specific areas of the brain.

There is some evidence that schizophrenia may be a type of developmental disorder related to the formation of faulty connections between nerve cells during fetal development. The changes in the brain that normally occur during puberty then interact with these connections to trigger the symptoms of the disorder. Other researchers have suggested that a difficult **childbirth** may result in developmental vulnerabilities that eventually lead to schizophrenia.

Certain environmental factors during **pregnancy** are also associated with an increased risk of schizophrenia in the offspring. These include the mother's exposure to starvation or famine, **influenza** during the second trimester of pregnancy, and Rh incompatibility in a second or third pregnancy.

Some researchers are investigating a possible connection between schizophrenia and viral **infections** of the hippocampus, a structure in the brain that is associated with memory formation and the human **stress** response. It is thought that damage to the hippocampus might account for the sensory disturbances found in schizophrenia. Another line of research related to viral causes of schizophrenia concerns a protein deficiency in the brain.

Environmental stressors related to home and family life (e.g., parental death or divorce, family dysfunction) or to separation from the family of origin in late adolescence (e.g., going away to college or military training; marriage) may trigger the onset of schizophrenia in individuals with genetic or psychological vulnerabilities.

Symptoms

The onset of symptoms in schizophrenia may be either abrupt (sudden) or insidious (gradual). Often, however, it goes undetected for two to three years after the onset of symptoms because the symptoms occur in the context of a previous history of cognitive and behavioral problems. The patient may have had panic attacks, social phobia, or **substance abuse** problems, any of which can complicate the process of

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

diagnosis. Patients with schizophrenia do not always have the same set of symptoms, and each patient's symptoms may change over time.

The symptoms of schizophrenia are divided into two major categories: positive and negative.

POSITIVE SYMPTOMS. The positive symptoms of schizophrenia are defined by *DSM-IV* as excesses or distortions of normal mental functions. The positive symptoms of schizophrenia include four "first-rank" or Schneiderian symptoms, named for the German psychiatrist Kurt Schneider who proposed these symptoms as diagnostic of the disorder in 1959. Positive symptoms include:

- delusions
- somatic hallucinations
- hearing voices commenting on one's behavior or talking to each other
- thought insertion or withdrawal

Delusions are false but strongly held beliefs that result from the patient's inability to separate real from unreal events. The most common form of delusion in patients with schizophrenia is persecutory; individuals believe that others—family members, clinical staff, terrorists—are victimizing them. Another common delusion is referential, which means that the person interprets objects or occurrences in the environment (e.g., a picture on the wall, a song played on the radio, laughter in the corridor) as being directed at or referring to them.

Hallucinations are disturbances of sense perception. Somatic hallucinations refer to sensations or perceptions about one's body that have no known medical cause, such as the notion that one's brain is radioactive.

Auditory hallucinations (e.g., hearing voices) are the most common form of hallucination in schizophrenia, although visual, tactile, olfactory, and gustatory hallucinations may also occur.

Thought insertion and/or withdrawal refer to delusions that other beings or forces (e.g., God, the FBI, the CIA, martians) have the power to put thoughts or ideas into one's mind or remove them.

Other positive symptoms of schizophrenia include:

- Disorganized speech and thinking. A person with schizophrenia may ramble from one topic to another (derailment or loose associations); may give unrelated answers to questions (tangentiality); or may say things that cannot be understood because there is no grammatical structure to the language ("word salad" or incoherence).
- Disorganized behavior. This symptom includes such behaviors as agitation; age-inappropriate silliness; inability to maintain personal hygiene; dressing inappropriately for the weather; sexual self-stimulation in public; shouting at people. In one case study, the patient played his flute for hours on end while standing on top of the family car.
- Catatonic behavior. Catatonic behaviors have been described with regard to the catatonic subtype of schizophrenia. This particular symptom is sometimes found in other mental disorders.

NEGATIVE SYMPTOMS. The negative symptoms of schizophrenia represent a loss or reduction of normal functioning, according to the *DSM-IV*. Negative symptoms represent the lack or absence of behaviors and include:

- Blunted or flattened affect. This term refers to loss of emotional expressiveness. The person's face may be unresponsive or expressionless, and speech may lack vitality or warmth.
- Alogia. Alogia is sometimes called poverty of speech. The person has little to say and is not able to expand on his or her statements. A doctor examining the patient must be able to distinguish between alogia and unwillingness to speak.
- Avolition. The person is unable to begin or stay with goal-directed activities. The person may sit in one location for long periods of time or show little interest in joining group activities.
- Anhedonia. Anhedonia refers to the loss of one's capacity for enjoyment or pleasure.

In general, the negative symptoms are more difficult for doctors to evaluate than the positive symptoms because they may be influenced by a concurrent depressive disorder or a dull and unstimulating environment. However, negative symptoms account for much of the morbidity (unhealthiness) associated with schizophrenia.

OTHER SYMPTOMS AND CHARACTERISTICS. Although the following symptoms and features are not diagnostic criteria of schizophrenia, most patients with the disorder have one or more:

- Dissociative symptoms, particularly depersonalization and derealization.
- Anosognosia. This term originally referred to the inability of stroke patients to recognize their physical disabilities, but it is sometimes used to refer to lack of insight in patients with schizophrenia. Anosognosia is associated with higher rates of noncompliance with treatment, a higher risk of repeated psychotic episodes, and a poorer prognosis for recovery.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

- High rates of substance abuse disorders. About 50% of patients diagnosed with schizophrenia meet criteria for substance abuse or dependence. While substance abuse does not cause schizophrenia, it can worsen the symptoms of the disorder. Patients may have particularly bad reactions to amphetamines, cocaine, PCP (angel dust) or marijuana. It is thought that patients with schizophrenia are attracted to drugs of abuse as self-medication for some of their symptoms. The most common substance abused by patients with schizophrenia is tobacco; 90% of patients are heavy cigarette smokers, compared to 25 to 30% in the general adult population. Smoking is a serious problem for people with schizophrenia because it interferes with the effectiveness of their antipsychotic medications as well as increasing their risk of lung cancer and other respiratory diseases.
- High risk of suicide. About 40% of patients with schizophrenia attempt suicide at least once, and 10% eventually complete the act.
- High rates of obsessive-compulsive disorder and panic disorder.
- Downward drift. Downward drift is a sociological term that refers to having lower levels of educational achievement and/or employment than one's parents.

VIOLENT BEHAVIOR. The connection between schizophrenia and personal assault or violence deserves mention because it is a major factor in the reactions of family members and the general public to the diagnosis. Researchers in both the United Kingdom and the United States have found that schizophrenia carries a heavier stigma than most other mental disorders, largely because of the mass media's fascination with bizarre murders, dismemberment of animals, or other gruesome acts that are found to have been committed by a person with schizophrenia. Many patients report that the popular image of a schizophrenic as "a time bomb waiting to explode" is a source of considerable emotional stress.

Risk factors for violence in a patient diagnosed with schizophrenia include male sex, age below 30, prediagnosis history of violence, paranoid subtype, nonadherence to medication regimen, and heavy substance abuse. By contrast, it should be noted that most crimes of violence are committed by people without a diagnosis of schizophrenia.

Diagnosis

There are no symptoms that are unique to schizophrenia, and no single symptom that is a diagnostic hallmark of the disorder. In addition, there are no laboratory tests or imaging tests that can establish or confirm a diagnosis of schizophrenia. The diagnosis is based on a constellation or group of related symptoms that are, according to *DSM-IV-TR*, "associated with impaired occupational or social functioning."

As part of the process of diagnosis, the doctor takes a careful medical history and orders laboratory tests of the patient's blood or urine in order to rule out general medical conditions or substance abuse disorders that may be accompanied by disturbed behavior. X rays or other imaging studies of the head may also be ordered. Medical conditions to be ruled out include **epilepsy**, head trauma, brain tumor, Cushing's syndrome, Wilson's disease, Huntington's disease, and encephalitis. Drugs of abuse that may cause symptoms resembling schizophrenia include amphetamines (speed), cocaine, and phencyclidine (PCP). In older patients, **dementia** and delirium must be ruled out. If the patient has held jobs involving exposure to mercury, polychlorinated biphenyls (PCBs), or other toxic substances, environmental poisoning must also be considered in the differential diagnosis.

The doctor must also rule out other mental disorders that may be accompanied by psychotic symptoms, such as mood disorders; brief psychotic disorders; dissociative disorder not otherwise specified or dissociative identity disorder; delusional disorder; schizotypal, schizoid, or paranoid personality disorders; and pervasive developmental disorders. In children, childhood-onset schizophrenia must be distinguished from communication disorders with disorganized speech and from attention-deficit/hyperactivity disorder.

After other organic and mental disorders have been ruled out, it must be determined whether the patient meets the following criteria, as specified by *DSM-IV-TR*:

- Presence of positive and negative symptoms. The patient must have two (or more) of the following symptoms during a one-month period: delusions; hallucinations; disorganized speech; disorganized or catatonic behavior; negative symptoms.
- Decline in social, interpersonal, or occupational functioning, including personal hygiene or self-care.
- Duration. The symptomatic behavior must last for at least six months.
- Diagnostic exclusions. Mood disorders, substance abuse disorders, medical conditions, and developmental disorders have been ruled out.

Treatment

In the late 2000s treatment of schizophrenia focused on symptom reduction and relapse prevention, since the causes of the disorder had not yet been clearly identified.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Affect—The expression of emotion displayed to others through facial expressions, hand gestures, tone of voice. Types of affect include: flat (inanimate, no expression), blunted (minimally responsive), inappropriate (incongruous expressions of emotion relative to the content of a conversation), and labile (sudden and abrupt changes in type and intensity of emotion).

Agranulocytosis—A blood disorder characterized by a reduction in the number of circulating white blood cells (granulocytes). White blood cells defend the body against infections. Agranulocytosis is a potential side effect of some of the newer antipsychotic medications used to treat schizophrenia.

Akathisia—Agitated or restless movement, usually affecting the legs and accompanied by a sense of discomfort; a common side effect of neuroleptic medications.

Anhedonia—Loss of the capacity to experience pleasure. One of the so-called negative symptoms of schizophrenia, anhedonia is also a symptom of major depression.

Anosognosia—Lack of awareness of the nature of one's illness. The term is usually applied to stroke patients, but is sometimes used to refer to lack of insight on the part of patients with schizophrenia. Anosognosia appears to be caused by the illness itself; it does not appear to be a form of denial or inappropriate coping mechanism. It is, however, a factor in a person's adherence to treatment regimens and the increased risk of relapse.

Atypical antipsychotics—A group of medications for the treatment of psychotic symptoms that were introduced in the 1990s. The atypical antipsychotics include clozapine, risperidone, quetiapine, ziprasidone, and olanzapine. They are sometimes called serotonin dopamine antagonists (SDAs).

Blunted affect—A term that refers to the loss of emotional expressiveness sometimes found in patients with schizophrenia. It is sometimes called flattened affect.

Catatonia—Disturbance of motor behavior with either extreme stupor or random, purposeless activity.

Delusion—A false belief that is resistant to reason or contrary to actual fact. Common delusions in schizophrenia include delusions of persecution, delusions about one's importance (sometimes called delusions of grandeur), or delusions of being controlled by others.

Dementia praecox—A late nineteenth-century term for schizophrenia.

Dopamine—A neurotransmitter that acts within certain brain cells to help regulate emotions and movement. Some of the symptoms of schizophrenia are related to excessive levels of dopamine activity in a part of the brain called the striatum.

Dopamine receptor antagonists (DAs)—The older class of antipsychotic medications, also called neuroleptics. These primarily block the site on nerve cells that normally receives the brain chemical dopamine.

Dystonia—Painful involuntary muscle cramps or spasms; one of the extrapyramidal side effects associated with antipsychotic medications.

Extrapyramidal symptoms (EPS)—A group of side effects associated with antipsychotic medications. EPS include parkinsonism, akathisia, dystonia, and tardive dyskinesia.

First-rank symptoms—A list of symptoms that have been considered to be diagnostic of schizophrenia. These include delusions, somatic hallucinations, hearing voices commenting on one's behavior, and thought insertion or withdrawal. First-rank symptoms are sometimes called Schneiderian symptoms, after Kurt Schneider, the German psychiatrist who listed them in 1959.

Unfortunately, not all patients with schizophrenia receive adequate treatment.

Medications

Antipsychotic medications are the primary treatment for schizophrenia. Drug therapy for the disorder, however, is complicated by several factors: the unpredictability of a given patient's response to specific medications, the number of potentially troublesome side effects, the high rate of substance abuse among patients with schizophrenia, and the possibility of drug interactions between antipsychotic medications and antidepressants or other medications that may be prescribed for the patient.

One of the most difficult challenges in treating schizophrenia patients with medications is helping them stay on medication. Many schizophrenics do not take their medication because it does not

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS (CONTINUED)

Hallucination—False sensory perceptions. A person experiencing a hallucination may hear sounds or see people or objects that are not really present. Hallucinations can also affect the senses of smell, touch, and taste.

Hebephrenic schizophrenia—An older term for what was later known as the disorganized subtype of schizophrenia.

Huntington's chorea—A hereditary disease that typically appears in midlife, marked by gradual loss of brain function and voluntary movement. Some of its symptoms resemble those of schizophrenia.

Morbidity—The unhealthiness or disease characteristics associated with a mental disorder.

Negative symptoms—Symptoms of schizophrenia that represent a loss or reduction of normal functioning.

Neuroleptic—Another name for the older type of antipsychotic medications given to schizophrenic patients.

Parkinsonism—A set of symptoms originally associated with Parkinson's disease that can occur as side effects of neuroleptic medications. The symptoms include trembling of the fingers or hands, a shuffling gait, and tight or rigid muscles.

Polygenic—A trait or disorder that is determined by a group of genes acting together. Most human characteristics, including height, weight, and general body build, are polygenic. Schizophrenia and late-onset Alzheimer's disease are considered polygenic disorders.

Positive symptoms—Symptoms of schizophrenia that represent excesses or distortions of normal mental functions.

Prodromal—Premonitory; having the character of a warning. The first psychotic episode in schizophrenia is often preceded by a prodromal phase.

Psychosis—Severe state that is characterized by loss of contact with reality and deterioration in normal social functioning; examples are schizophrenia and paranoia. Psychosis is usually one feature of an overarching disorder, not a disorder in itself.

Reality testing—A phrase that refers to a person's ability to distinguish between subjective feelings and objective reality.

Referential—A type of delusion in which the person misinterprets items, minor occurrences, or other people's behavior as referring to them. Misinterpretations of this sort that are not as resistant to reality as a delusion are sometimes called ideas of reference.

Schneiderian symptoms—Another name for first-rank symptoms of schizophrenia.

Serotonin dopamine antagonists (SDAs)—A second-generation of antipsychotic drugs, also called atypical antipsychotics. SDAs include clozapine (Clozaril), risperidone (Risperdal), and olanzapine (Zyprexa).

Striatum—A part of the basal ganglia, a deep structure in the cerebral hemisphere of the brain. Abnormally high levels of dopamine in the striatum are thought to be related to the delusions and hallucinations of schizophrenia.

Supportive—An approach to psychotherapy that seeks to encourage the patient or offer emotional support to him or her, as distinct from insight-oriented or educational approaches to treatment.

Tardive dyskinesia (TD)—A condition that involves involuntary movements of the tongue, jaw, mouth, or face or other groups of skeletal muscles that usually occurs either late in antipsychotic therapy or even after the therapy is discontinued. It may be irreversible.

Wilson's disease—A rare hereditary disease marked by high levels of copper deposits in the brain and liver. It can cause psychiatric symptoms resembling schizophrenia.

adequately control their symptoms or produces adverse side effects. After the patient has been stabilized, an antipsychotic drug may be given in a long-acting form called a depot dose. Depot medications last for two to four weeks; they have the advantage of protecting the patient against the consequences of forgetting or skipping daily doses. In addition, some patients who do not respond to oral neuroleptics have better results with depot form.

NEUROLEPTICS. The first antipsychotic medications for schizophrenia were introduced in the 1950s and known as dopamine antagonists (DAs). Sometimes called neuroleptics, they include haloperidol (Haldol), chlorpromazine (Thorazine), perphenazine (Trilafon), and fluphenazine (Prolixin). About 40% of patients, however, fail to respond to treatment with these medications. Neuroleptics can control most of the positive symptoms of schizophrenia as well as reduce the frequency

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

and severity of relapses, but they have little effect on negative symptoms. In addition, these medications have problematic side effects, ranging from **dry mouth**, blurry vision, and restlessness (akathisia) to such long-term side effects as tardive dyskinesia (TD), a disorder characterized by involuntary movements of the mouth, lips, arms, or legs. TD affects about 15 to 20% of patients who have been receiving neuroleptic medications over a period of years. Discomfort related to these side effects is one reason why 40% of patients treated with the older antipsychotics do not adhere to their medication regimens.

ATYPICAL ANTIPSYCHOTICS. The atypical antipsychotics are newer medications introduced in the 1990s. They are sometimes called serotonin dopamine antagonists (SDAs). These medications include aripiprazole (Abilify), clozapine (Clozaril), risperidone (Risperdal), quetiapine (Seroquel), ziprasidone (Geodon), and olanzapine (Zyprexa). These drugs are more effective in treating the negative symptoms of schizophrenia and have fewer side effects than the previous antipsychotics. Clozapine has been reported to be effective in patients who do not respond to neuroleptics, and it helps to reduce the risk of suicide attempts. The atypical antipsychotics, however, do have weight gain as a side effect, and patients taking clozapine must have their blood monitored periodically for signs of agranulocytosis (a drop in the number of white blood cells).

The Clinical Antipsychotic Trials of Intervention Effectiveness (CATIE) Schizophrenia Study, funded by the NIMH and coordinated by the University of North Carolina at Chapel Hill, investigated the effectiveness of several atypical antipsychotic drugs against that of a conventional drug. Contrary to expectations, however, it was found that the new drugs did not perform significantly better than the older drug. The results of the CATIE study also had implications to help schizophrenics and their physicians make decisions about which other drugs to try when one antipsychotic medication was unacceptable, either because it did not adequately control symptoms or produced adverse side effects.

OTHER PRESCRIPTION MEDICATIONS. Patients with schizophrenia have a lifetime prevalence of 80% for major depression; others suffer from **phobias** or other **anxiety** disorders. The doctor may prescribe antidepressants or a short course of benzodiazepines along with antipsychotic medications.

Inpatient treatment

Patients with schizophrenia are usually hospitalized during acute psychotic episodes, to prevent harming themselves or others, and to begin treatment with antipsychotic medications. A patient having a first psychotic episode is usually given a computed tomography (CT) or magnetic resonance imaging (MRI) scan to rule out structural brain disease.

Outpatient treatment

Since the 1990s, patients with schizophrenia who have been stabilized on antipsychotic medications have been given psychosocial therapies of various types to assist them with motivation, self-care, and forming relationships with others. In addition, because many patients have had their education or vocational training interrupted by the onset of the disorder, they may be helped by therapies directed toward improving their social functioning and work skills.

Specific outpatient treatments that have been used with patients with schizophrenia include:

- Rehabilitation programs. These programs may offer vocational counseling, job training, problem-solving, and money management skills, use of public transportation, and social skills training.
- Cognitive-behavioral therapy and supportive psychotherapy.
- Family psychoeducation. This approach is intended to help family members understand the patient's illness, cope with the problems it creates for other family members, and minimize stresses that may increase the patient's risk of relapse.
- Self-help groups. These groups provide mutual support for family members as well as patients. They can also serve as advocacy groups for better research and treatment, and to protest social stigma and employment discrimination.

Alternative and complementary therapies

Alternative and complementary therapies that as of 2008 were being investigated for the treatment of schizophrenia included gingko biloba, an Asian shrub, and vitamin therapy. One Chinese study reported that a group of patients who had not responded to conventional antipsychotic medications benefited from a thirteen-week trial of gingko extract, with significantly fewer side effects. Vitamin therapy is recommended by naturopathic practitioners on the grounds that many hospitalized patients with schizophrenia suffer from nutritional deficiencies. The supplements recommended include **folic acid**, **niacin**, vitamin B_6, and **vitamin C**. **Essential fatty acids** (such as **fish oil** or flax oil supplements) and ginseng may help to balance the mind and decrease or improve the side effects of anti-psychotic medication but should not be taken without consultation with a doctor. Grounding and

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

stress reducing therapies such as breathwork and **movement therapy** (**yoga**, **t'ai chi**, and **qigong**) are also beneficial. However, long-term compliance with a medication regime is critical to controlling the disease.

Prognosis

Patients with early onset of schizophrenia are more often male, have a lower level of functioning prior to onset, a higher rate of brain abnormalities, more noticeable negative symptoms, and worse outcomes. Patients with later onset are more likely to be female, with fewer brain abnormalities and thought impairment, and more hopeful prognoses.

The average course and outcome for people with schizophrenia are less favorable than those for most other mental disorders. About 20% of patients with schizophrenia recover the full level of functioning that they had before the onset of the disorder, according to NIMH statistics, but the remaining 80% have problems reentering mainstream society. These patients are often underachievers in school and in the workplace, and they usually have difficulty forming healthy relationships with others. The majority (60–70%) of patients with schizophrenia do not marry or have children, and most have very few friends or social contacts. The impact of these social difficulties as well as the stress caused by the symptoms themselves is reflected in the high suicide rate among patients with schizophrenia. About 10% commit suicide within the first 10 years after their diagnosis—a rate 20 times higher than that of the general population.

Schizophrenics with a high number of stressful changes in their lives, or who have frequent contacts with critical or emotionally involved family members, are more likely to relapse. Overall, the most important component of long-term care for schizophrenic patients is their compliance with their regimen of antipsychotic medications.

Prevention

As of 2008, there was no known method for preventing schizophrenia.

Resources

BOOKS

Kingdon, David G., and Douglas Turkington. *Cognitive Therapy of Schizophrenia (Guides to Individualized Evidence-Based Treatment)*. New York: Guilford Press, 2008.

Lieberman, Jeffrey A., T. Scott Stroup, and Diana O. Perkins, eds. *The American Psychiatric Publishing Textbook of Schizophrenia*. Arlington, VA: American Psychiatric Publishing, 2006.

Sadock, Benjamin J., and Virginia A. Sadock. *Kaplan and Sadock's Synopsis of Psychiatry: Behavioral Sciences/Clinical Psychology*. Philadelphia: Lippincott Williams & Wilkins, 2007.

VandenBos, Gary R., ed. *APA Dictionary of Psychology*. Washington, DC: American Psychological Association, 2006.

PERIODICALS

Barrowclough, Christine, et al. "Group Cognitive-Behavioural Therapy for Schizophrenia." *British Journal of Psychiatry* 189, no. 6 (December 2006): 527–532.

Carr, Vaughan J., Terry J. Lewin, and Amanda L. Neil. "What Is the Value of Treating Schizophrenia?" *Australian and New Zealand Journal of Psychiatry* 40, no. 11–12 (November 2006): 963–971.

Gray, Richard, et al. "Adherence Therapy for People with Schizophrenia." *British Journal of Psychiatry* 189, no. 6 (December 2006): 508–514.

Lawrence, R., T. Bradshaw, and H. Mairs. "Group Cognitive Behavioural Therapy for Schizophrenia: A Systematic Review of the Literature." *Journal of Psychiatric and Mental Health Nursing* 13, no. 6 (December 2006): 673–681.

Lipkovich, I., et al. "Predictors of Risk for Relapse in Patients with Schizophrenia or Schizoaffective Disorder During Olanzapine Drug Therapy." *Journal of Psychiatric Research* 41, no. 3–4 (April/June 2007): 305–310.

Yanos, P. T., and R. H. Moos. "Determinants of Functioning and Well-Being Among Individuals with Schizophrenia: An Integrated Model." *Clinical Psychology Review* 27, no. 1 (January 2007): 58–77.

ORGANIZATIONS

American Academy of Child & Adolescent Psychiatry, 3615 Wisconsin Ave. NW, Washington, DC, 20016-3007, (202) 966-7300, http://www.aacap.org.

American Psychiatric Association, 1000 Wilson Blvd., Suite 1825, Arlington, VA, 22209-3901, (703) 907-7300, http://www.psych.org.

Mental Health America, 2000 N. Beauregard St., 6th Floor, Alexandria, VA, 22311, (800) 969-6642, (703) 684-7722, http://www.nmha.org.

National Alliance for Research on Schizophrenia and Depression (NARSAD), 60 Cutter Mill Rd., Suite 404, Great Neck, NY, 11021, (800) 829-8289, www.narsad.org.

National Alliance on Mental Illness (NAMI), Colonial Place Three, 2107 Wilson Blvd., Suite 300, Arlington, VA, 22201-3042, (703) 524-7600, http://www.nami.org.

National Institute of Mental Health, 6001 Executive Blvd., Bethesda, MD, 20892-9663, (866) 615-6464, (301) 443-4513, http://www.nimh.nih.gov.

Paula Ford-Martin
Teresa G. Odle
Angela M. Costello

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Sciatica

Definition

Sciatica refers to **pain** or discomfort associated with the sciatic nerve. This nerve runs from the lower part of the spinal cord, down the back and side of the leg, to the foot. Injury to or pressure on the sciatic nerve can cause the characteristic pain of sciatica: a sharp or burning pain, or even numbness, that radiates from the lower back or hip, possibly following the path of the sciatic nerve to the foot.

Description

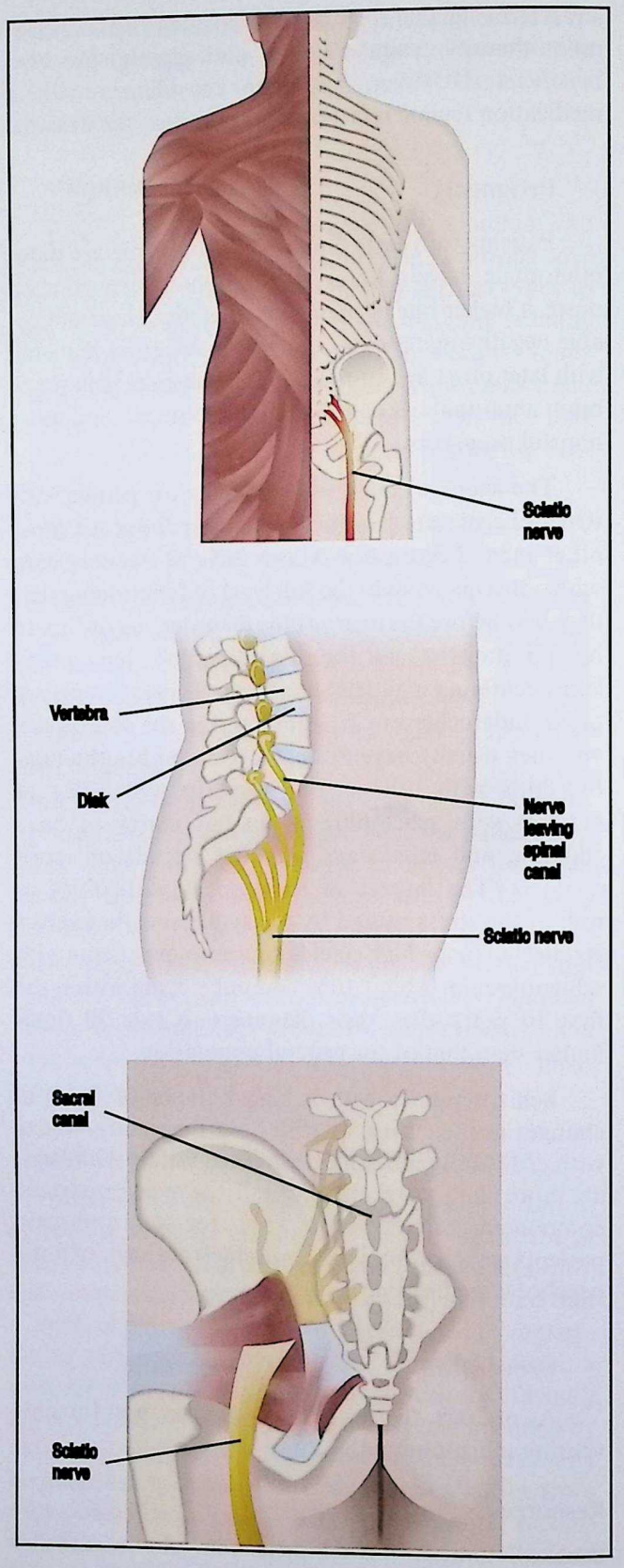
The sciatic nerve is the largest and longest nerve in the body. About the thickness of a person's thumb, it spans from the lower back to the foot. The nerve originates in the lower part of the spinal cord, the so-called lumbar region. As it branches off from the spinal cord, it passes between the bony vertebrae (the component bones of the spine) and runs through the pelvic girdle, or hip bones, and the buttock area. The nerve passes through the hip joint and continues down the back and side of the leg to the foot.

Sciatica is a fairly common disorder and approximately 40% of the population experiences it at some point in their lives. However, only about 1% have coexisting sensory or motor deficits. Sciatic pain has several root causes and treatment may hinge upon the underlying problem.

Of the identifiable causes of sciatic pain, lumbosacral radiculopathy and back strain are the most frequently suspected. The term lumbosacral refers to the lower part of the spine, and radiculopathy describes a problem with the spinal nerve roots that pass between the vertebrae and give rise to the sciatic nerve. This area between the vertebrae is cushioned with a disk of shock-absorbing tissue. If this disk shifts or is damaged through injury or disease, the spinal nerve root may be compressed by the shifted tissue or the vertebrae.

This compression of the nerve roots sends a pain signal to the brain. Although the actual injury is to the nerve roots, the pain may be perceived as coming from anywhere along the sciatic nerve.

The sciatic nerve can be compressed in other ways. Back strain may cause **muscle spasms** in the lower back, placing pressure on the sciatic nerve. In rare cases, infection, **cancer**, bone inflammation, or other diseases may be causing the pressure. More likely, but often overlooked, is the piriformis syndrome. As the sciatic nerve passes through the hip joint, it shares the space with several muscles. One of these muscles, the piriformis



(Illustration by GGS Information Services, Inc. Cengage Learning, Gale)

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Bodywork—Any healing technique involving hands-on massage or manipulation of the body. Types of bodywork that involve movement reeducation or movement patterning are also categorized as movement therapy.

Disk—Dense tissue between the vertebrae that acts as a shock absorber and prevents damage to nerves and blood vessels along the spine.

Electromyography—A medical test in which a nerve's ability to conduct an impulse is measured.

Lumbosacral—Referring to the lower part of the backbone or spine.

Myelography—A medical test in which a special dye is injected into a nerve to make it visible on an x ray.

Piriformis—A muscle in the pelvic girdle, or hip bones, that is closely associated with the sciatic nerve.

Radiculopathy—A condition in which the spinal nerve root of a nerve has been injured or damaged.

Spasm—Involuntary contraction of a muscle.

Vertebrae—The component bones of the spine.

muscle, is closely associated with the sciatic nerve. In some people, the nerve actually runs through the muscle. If this muscle is injured or has a spasm, it places pressure on the sciatic nerve, in effect, compressing it.

In many sciatica cases, the specific cause is never identified. About half of affected individuals recover from an episode within a month. Some cases can linger a few weeks longer and may require aggressive treatment. In some cases, the pain may return or potentially become chronic.

Causes and symptoms

Persons with sciatica may experience some lower back pain, but the most common symptom is pain that radiates through one buttock and down the back of that leg. The most identified cause of the pain is compression or pressure on the sciatic nerve. The extent of the pain varies between individuals. Some people describe pain that centers in the area of the hip, and others perceive discomfort all the way to the foot. The quality of the pain also varies; it may be described as tingling, burning, prickly, aching, or stabbing.

Onset of sciatica can be sudden, but it can also develop gradually. The pain may be intermittent or continuous, and certain activities, such as bending, coughing, **sneezing**, or sitting, may make the pain worse.

Chronic pain may arise from more than just compression on the nerve. According to some pain researchers, physical damage to a nerve is only half of the equation. A developing theory proposes that some nerve injuries result in a release of neurotransmitters and immune system chemicals that enhance and sustain a pain message. Even after the injury has healed, or the damage has been repaired, the pain continues. Control of this abnormal type of pain is difficult.

Diagnosis

Before treating sciatic pain, as much information as possible must be collected. The individual is asked to recount the location and nature of the pain, how long it has continued, and any accidents or unusual activities prior to its onset. This information provides clues that may point to back strain or injury to a specific location. Back pain from disk disease, piriformis syndrome, and back strain must be differentiated from more serious conditions, such as cancer or infection. Lumbar stenosis, an overgrowth of the covering layers of the vertebrae that narrows the spinal canal, must also be considered. The possibility that a difference in leg lengths is causing the pain should be evaluated; the problem can be easily be treated with a foot orthotic or built-up shoe.

Often, a straight-leg-raising test is done, in which the person lies face upward and the health-care provider raises the affected leg to various heights. This test pinpoints the location of the pain and may reveal whether it is caused by a disk problem. Other tests, such as having the individual rotate the hip joint, assess the hip muscles. Any pain caused by these movements may provide information about involvement of the piriformis muscle, and piriformis weakness is tested with additional leg-strength maneuvers.

Further tests may be done depending on the results of the physical examination and initial pain treatment. Such tests might include magnetic resonance imaging (MRI) and computed tomography scans (CT scans). Other tests examine the conduction of electricity through nerve tissues, and include studies of the electrical activity generated as muscles contract (electromyography), nerve conduction velocity, and evoked potential testing. A more invasive test involves injecting a contrast substance into the space between the vertebrae and making x-ray images of the spinal cord (myelography), but this procedure is usually done only if surgery is being considered as an option. All of these tests can reveal problems with the vertebrae, the disk, or the nerve itself.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Treatment

Massage is a recommended form of therapy, especially if the sciatic pain arises from muscle spasm. Symptoms may also be relieved by icing the painful area as soon as the pain occurs. Ice should be left on the area for 30–60 minutes several times a day. After two or three days, a hot water bottle or heating pad can replace the ice. **Chiropractic** or **osteopathy** may offer possible solutions for relieving pressure on the sciatic nerve and the accompanying pain. **Biofeedback** may also be useful as a pain control method. Bodywork, such as the **Alexander technique**, can assist an individual in improving posture and preventing further episodes of sciatic pain.

Acupuncture is another alternative approach that appears to offer relief to many persons with sciatica, as indicated by several clinical trials in the United States and Europe. The World Health Organization (WHO) lists sciatica as one of 40 conditions for which acupuncture is recognized as an appropriate complementary treatment.

Practitioners of **Ayurvedic medicine** regard sciatica as a disorder resulting from an imbalance in vata, one of three doshas or energies in the human body. The traditional Ayurvedic treatment for vata disorders is vasti, or administration of an oil-based enema to cleanse the colon. An Ayurvedic herbal preparation that is used to treat sciatica is made from the leaves of *Nyctanthes arbor tristis*, which is also known as Parijat or "sad tree." A recent study of an alcohol-based extract of this plant indicates that it is effective as a tranquilizer and local anesthetic, which supports its traditional Ayurvedic use.

Western herbalists typically treat sciatica with **valerian** root to relax the muscle spasms that often accompany sciatica, and with **white willow** bark for pain relief.

Homeopathic remedies for sciatica include *Ruta graveolens*, *Colocynth* (for sciatic pain that is worse in cold or damp weather), or *Mag phos* (for lightning-like pains that are soothed by heat and made worse by coughing).

Allopathic treatment

Initial treatment for sciatica focuses on pain relief. For acute or very painful flare-ups, bed rest is advised for up to a week in conjunction with medication for the pain. Pain medication includes acetaminophen, nonsteroidal anti-inflammatory drugs (NSAIDs), such as aspirin, or muscle relaxants. If the pain is unremitting, opioids may be prescribed for short-term use or a local anesthetic will be injected directly into the lower back. Massage and heat application may be suggested as adjuncts.

If the pain is chronic, different pain relief medications are used to avoid long-term dosing of NSAIDs, muscle relaxants, and opioids. Antidepressant drugs, which have been shown to be effective in treating pain, may be prescribed alongside short-term use of muscle relaxants or NSAIDs. Local anesthetic injections or epidural steroids are used in selected cases.

As the pain allows, physical therapy is introduced into the treatment regime. Stretching exercises that focus on the lower back, buttock, and hamstring muscles are suggested. The exercises also include finding comfortable, pain-reducing positions. Corsets and braces may be useful in some cases, but evidence for their general effectiveness is lacking. However, they may be helpful to prevent exacerbations related to certain activities.

With less pain and the success of early therapy, the individual is encouraged to follow a long-term program to maintain a healthy back and prevent reinjury. A physical therapist may suggest exercises and regular activity, such as water **exercise** or walking. Patients are instructed in proper body mechanics to minimize symptoms during light lifting or other activities.

If the pain is chronic and conservative treatment fails, surgery to repair a **herniated disk** or cut out part or all of the piriformis muscle may be suggested, particularly if there is neurologic evidence of nerve or nerve-root damage.

A new minimally invasive surgical treatment for sciatica was introduced in 2002. It is known as microscopically assisted percutaneous nucleotomy, or MAPN. MAPN allows the surgeon to repair a herniated disk with less damage to surrounding tissues; it shortens the patient's recovery time and relieves the pain of sciatica as effectively as more invasive surgical procedures.

Expected results

Most cases of sciatica are treatable with pain medication and physical therapy. After four to six weeks of treatment, an individual should be able to resume normal activities.

Prevention

Some sources of sciatica are not preventable, such as disk degeneration, back strain due to **pregnancy**, or accidental falls. Other sources of back strain, such as

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

poor posture, overexertion, being overweight, or wearing high heels, can be corrected or avoided. Cigarette **smoking** may also predispose people to pain, and should be discontinued with the onset of pain.

General suggestions for avoiding sciatica or preventing a repeat episode include sleeping on a firm mattress; using chairs with firm back support; and sitting with both feet flat on the floor. Habitually crossing the legs while sitting can place excess pressure on the sciatic nerve. Sitting a lot can also place pressure on the sciatic nerves, so it is recommended to take short breaks and move around during the work day, during long trips, or when in any other situation that requires sitting for extended periods of time. If lifting is required, the back should be kept straight and the legs should provide the lift. Regular exercise, such as swimming and walking, can strengthen back muscles and improve posture. Exercise can also help maintain a healthy weight and lessen the likelihood of back strain.

Resources

BOOKS

Maigne, Robert. "Sciatica." In *Diagnosis and Treatment of Pain of Vertebral Origin: A Manual Medicine Approach.* Baltimore: Williams & Wilkins, 1996.

Pelletier, Kenneth R., MD. *The Best Alternative Medicine*, Part II, "CAM Therapies for Specific Conditions: Sciatica." New York: Simon & Schuster, 2002.

Rydevik, Björn, Mitsuo Hasue, and Peter Wehling. *Etiology of Sciatic Pain and Mechanisms of Nerve Root Compression,* vol. 1: The Lumbar Spine, 2d ed., edited by Sam W. Wiesel, et al. Philadelphia: W.B. Saunders Company, 1996.

PERIODICALS

Chiodo, A., and A. J. Haig. "Lumbosacral Radiculopathies: Conservative Approaches to Management." *Physical Medicine and Rehabilitation Clinics of North America* 13 (August 2002): 609-621.

Douglas, Sara. "Sciatic Pain and Piriformis Syndrome." *The Nurse Practitioner* 22 (May 1997): 166.

Greiner-Perth, R., H. Bohm, and H. El Saghir. "Microscopically Assisted Percutaneous Nucleotomy, An Alternative Minimally Invasive Procedure for the Operative Treatment of Lumbar Disc Herniation: Preliminary Results." *Neurosurgical Review* 25 (August 2002): 225-227.

Parziale, John R., Thomas H. Hudgins, and Loren M. Fishman. "The Piriformis Syndrome." *The American Journal of Orthopedics* (December 1996): 819.

Saxena, R. S., B. Gupta, and S. Lata. "Tranquilizing, Antihistaminic and Purgative Activity of *Nyctanthes arbor tristis* Leaf Extract." *Journal of Ethnopharmacology* 81 (August 2002): 321-325.

Wheeler, Anthony H. "Diagnosis and Management of Low Back Pain and Sciatica." *American Family Physician* (October 1995): 1333.

ORGANIZATIONS

American Academy of Medical Acupuncture (AAMA). 4929 Wilshire Blvd., Suite 428, Los Angeles, CA 90010. (323) 937-5514. www.medicalacupuncture.org.

American Academy of Orthopaedic Surgeons (AAOS). 6300 North River Road, Rosemont, IL 60018. (847) 823-7186 or (800) 346-AAOS. www.aaos.org.

American Physical Therapy Association (APTA). 1111 North Fairfax Street, Alexandria, VA 22314. (703)684-APTA or (800) 999-2782. www.apta.org.

National Center for Homeopathy. 801 North Fairfax Street, Alexandria, VA 22314. (703) 548-7790. www.homeopathic.org.

National Institute of Ayurvedic Medicine. 584 Milltown Road, Brewster, NY 10509. (845) 278-8700. www.niam.com.

Kathleen Wright
Rebecca J. Frey, PhD

Scoliosis

Definition

Scoliosis is defined as an abnormal side-to-side or front-to-back curvature of the spine.

Description

When viewed from the rear, the spine usually appears perfectly straight. Scoliosis is a lateral (side-to-side) curve in the spine, usually combined with a rotation of the vertebrae. The lateral curvature of scoliosis should not be confused with the normal set of front-to-back spinal curves visible from the side. While a small degree of lateral curvature does not cause any medical problems, larger curves can cause postural imbalance and lead to muscle **fatigue** and **pain**. More severe scoliosis can interfere with breathing and lead to arthritis of the spine (spondylosis).

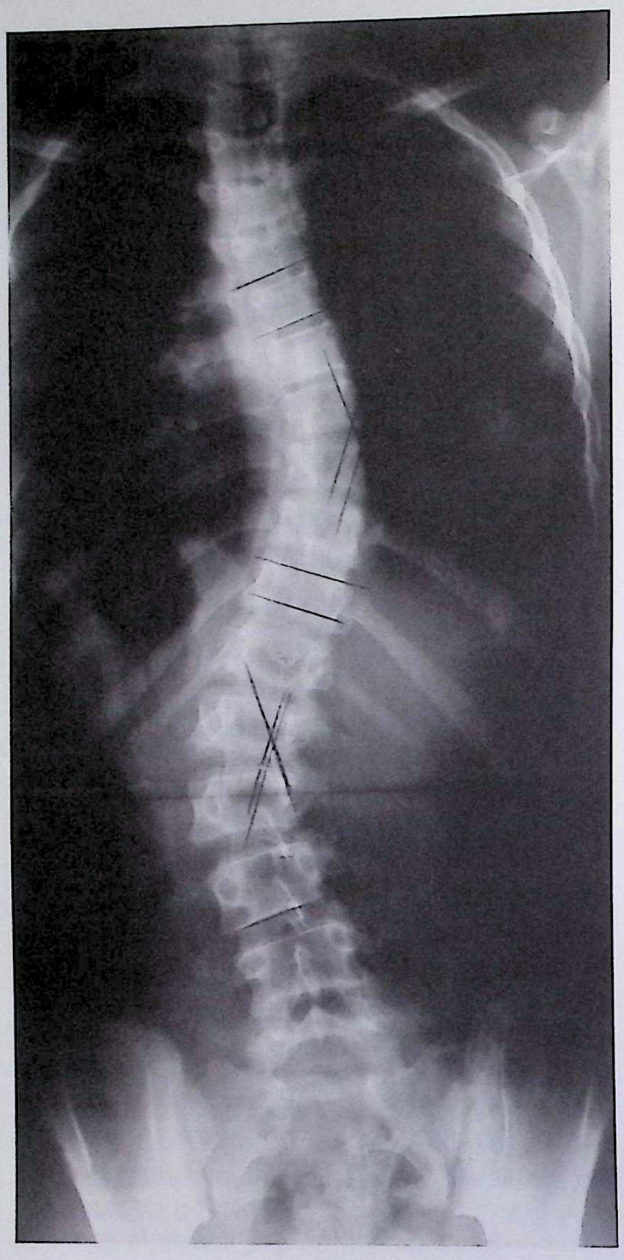
Approximately 10% of all adolescents have some degree of scoliosis, though fewer than 1% have curves that require medical attention beyond monitoring. Scoliosis is found in both boys and girls, but a girl's spinal curve is much more likely to progress than a boy's. Girls require scoliosis treatment about five times as often. The reason for these differences is not known.

Causes and symptoms

Four out of five cases of scoliosis are *idiopathic*, meaning that the cause is unknown. Idiopathic scoliosis tends to run in families; genetic screening has identified several different patterns of genetic transmission as of late 2001. In some families, idiopathic scoliosis is transmitted

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri



An x ray of a spine with scoliosis, the appreciable lateral deviation in the normally straight vertical line of the spine. *(© Medical-on-Line / Alamy)*

in an autosomal dominant pattern, while in others the mode of inheritance is X-linked. Children with idiopathic scoliosis appear to be otherwise entirely healthy, and have not had any bone or joint disease early in life. Scoliosis is not caused by poor posture, diet, or carrying a heavy book-bag exclusively on one shoulder.

Idiopathic scoliosis is further classified according to age of onset:

- Infantile. Curvature appears before age three. This type is quite rare in the United States, but is more common in Europe.

KEY TERMS

Adams test—A screening test in which a child being examined for scoliosis is asked to bend forward with the feet together and the knees straight.

Cobb angle—A measure of the curvature of scoliosis, determined by measurements made on x rays.

Scoliometer—A tool for measuring trunk asymmetry; it includes a bubble level and angle measure.

Spondylosis—Arthritis of the spine.

- Juvenile. Curvature appears between ages three and 10. This type may be equivalent to the adolescent type, except for the age of onset.
- Adolescent. Curvature appears between ages of 10 and 13, near the beginning of puberty. This is the most common type of idiopathic scoliosis.
- Adult. Curvature begins after physical maturation is completed.

Causes are known for three other types of scoliosis:

- Congenital scoliosis is due to congenital birth defects in the spine, often associated with other organ defects.
- Neuromuscular scoliosis is due to loss of control of the nerves or muscles that support the spine. The most common causes of this type of scoliosis are cerebral palsy and muscular dystrophy.
- Degenerative scoliosis may be caused by degeneration of the discs that separate the vertebrae or arthritis in the joints that link them.

Scoliosis causes a noticeable asymmetry in the torso when viewed from the front or back. The first sign of scoliosis is often seen when a child is wearing a bathing suit or underwear. A child may appear to be standing with one shoulder higher than the other, or to have a tilt in the waistline. One shoulder blade may appear more prominent than the other due to rotation. In girls, one breast may appear higher than the other, or larger if rotation pushes that side forward.

Curve progression is greatest near the adolescent growth spurt. Scoliosis that begins early on is more likely to progress significantly than scoliosis that begins later in puberty.

More than 30 states have screening programs in schools for adolescent scoliosis, usually conducted by trained school nurses or gym teachers.

Diagnosis

Diagnosis for scoliosis is typically continued by an orthopedist. A complete medical history is taken,

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

including questions about family history of scoliosis. The physical examination includes determination of pubertal development in adolescents, a neurological exam (which may reveal a neuromuscular cause), and measurements of trunk asymmetry. Examination of the trunk is done while the patient is standing, bending over, and lying down. The forward bending test is sometimes referred to as the Adams test. It involves both visual inspection and use of a simple mechanical device called a scoliometer.

If a curve is detected, one or more x rays will usually be taken to define the curve or curves more precisely. An x ray is used to document spinal maturity, any pelvic tilt or hip asymmetry, and the location, extent, and degree of curvature. The curve is defined in terms of where it begins and ends, in which direction it bends, and by an angle measure known as the Cobb angle. The Cobb angle is found by projecting lines parallel to the vertebrae tops at the extremes of the curve, projecting perpendiculars from these lines, and measuring the angle of intersection. To properly track the progress of scoliosis, it is important to project from the same points of the spine each time.

Occasionally, magnetic resonance imaging (MRI) is used, primarily to look more closely at the condition of the spinal cord and nerve roots extending from it if neurological problems are suspected.

Treatment

Although important for general health and strength, **exercise** has not been shown to prevent or slow the development of scoliosis. It may help to relieve pain from scoliosis by helping to maintain range of motion. Good **nutrition** is also important for general health, but no specific dietary regimen has been shown to control scoliosis development. In particular, dietary **calcium** levels do not influence scoliosis progression.

Chiropractic treatment may relieve pain, but it cannot halt scoliosis development, and should not be a substitute for conventional treatment of progressing scoliosis. **Acupuncture** and **acupressure** may also help reduce pain and discomfort, but they cannot halt scoliosis development either.

Other movement therapies (**yoga**, **t'ai chi**, **qigong**, and dance) improve flexibility and are useful when used with movement education therapies such as **Feldenkrais**, the **Rosen method**, the **Alexander technique**, and **Pilates**.

Allopathic treatment

Treatment decisions for scoliosis are based on the degree of curvature, the likelihood of significant progression, and the presence of pain, if any.

Curves less than 20° are not usually treated, except by regular follow-up for children who are still growing. Watchful waiting is usually all that is required in adolescents with curves of 20–30°, or adults with curves up to 40° or slightly more, as long as there is no pain.

For children or adolescents whose curves progress to 30°, and who have a year or more of growth left, bracing may be required. Bracing cannot correct curvature, but may be effective in halting or slowing progression. Bracing is rarely used in adults, except where pain is significant and surgery is not an option, as in some elderly patients.

Two general styles of braces are used for daytime wear. The Milwaukee brace consists of metal uprights attached to pads at the hips, rib cage, and neck. The underarm brace uses rigid plastic to encircle the lower rib cage, abdomen, and hips. Both of these brace types hold the spine in a vertical position. Because it can be worn out of sight beneath clothing, the underarm brace is better tolerated and often leads to better compliance. A third style, the Charleston bending brace, is used at night to bend the spine in the opposite direction. Braces are often prescribed to be worn for 22–23 hours per day, though some clinicians allow or encourage removal of the brace for exercise.

Bracing may be appropriate for scoliosis due to some types of neuromuscular disease, including spinal muscular atrophy, before growth is finished. Duchenne muscular dystrophy is not treated by bracing, since surgery is likely to be required, and since later surgery is complicated by loss of respiratory capacity.

Surgery for idiopathic scoliosis is usually recommended if:

- The curve has progressed despite bracing.
- The curve is greater than 40–50° before growth has stopped in an adolescent.
- The curve is greater than 50° and continues to increase in an adult.
- There is significant pain.

Orthopedic surgery for neuromuscular scoliosis is often done earlier. The goals of surgery are to correct the deformity as much as possible, to prevent further deformity, and to eliminate pain as much as possible. Surgery can usually correct 40–50% of the curve, and sometimes as much as 80%. Surgery cannot always completely remove pain.

The surgical procedure for scoliosis is called spinal fusion, because the goal is to straighten the spine as much as possible, and then to fuse the vertebrae together to prevent further curvature. To achieve fusion, the involved vertebra are first exposed, and

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

then scraped to promote regrowth. Bone chips are usually used to splint together the vertebrae to increase the likelihood of fusion. To maintain the proper spinal posture before fusion occurs, metal rods are inserted alongside the spine and attached to the vertebrae by hooks, screws, or wires. Fusion of the spine makes it rigid and resistant to further curvature. The metal rods are no longer needed once fusion is complete, but are rarely removed unless their presence leads to complications.

Spinal fusion leaves the involved portion of the spine permanently stiff and inflexible. While this leads to some loss of normal motion, most functional activities are not strongly affected, unless the very lowest portion of the spine (the lumbar region) is fused. Normal mobility, exercise, and even contact sports are usually all possible after spinal fusion. Full recovery takes approximately six months.

Expected results

The prognosis for a person with scoliosis depends on many factors, including the age at which scoliosis begins and the treatment received. More importantly, mostly unknown individual factors affect the likelihood of progression and the severity of the curve. Most cases of mild adolescent idiopathic scoliosis need no treatment and do not progress. Untreated severe scoliosis often leads to spondylosis, and may impair breathing.

Prevention

There is no known way to prevent the development of scoliosis. Progression of scoliosis may be prevented through bracing or surgery.

Resources

BOOKS

Neuwirth, Michael, and Kevin Osborn. *The Scoliosis Handbook*. New York: Henry Holt & Co., 1996.

PERIODICALS

Justice, C.M., N. H. Miller, B. Marosy, et al. "Genetic Heterogeneity Comprising Both X-Linked and Autosomal Dominant Forms of Inheritance in Families with Familial Idiopathic Scoliosis." *American Journal of Human Genetics* 69 (October 2001): 384.

Splete, Heidi. "Catch Curves Like Scoliosis in Time for Bracing (Watch Your Patients' Backs)." *Pediatric News* 35 (November 2001): 42–43.

ORGANIZATIONS

National Scoliosis Foundation. 5 Cabot Place Stoughton, MA 02072. (800) 673-6922. NSF@scoliosis.org. http://www.scoliosis.org.

The Scoliosis Association. PO Box 811705 Boca Raton, FL 33481-1705. (407) 368-8518. normlipin@aol.com. http://www.scoliosis-assoc.org.

Scoliosis Research Society. 611 East Wells Street Milwaukee, WI 53202. (414) 289-9107. Tjackson@execinc.com. http://www.srs.org.

Paula Ford-Martin
Rebecca J. Frey, PhD

Scratches *see* **Cuts and scratches**
Scullcap *see* **Skullcap**
Seasickness *see* **Motion sickness**

Seasonal affective disorder

Definition

Seasonal affective disorder (SAD) is a form of **depression** most often associated with lack of daylight in extreme northern and southern latitudes from the late fall to the early spring.

Description

Although researchers in the late 2000s remained uncertain about what causes seasonal affective disorder, they suspected that it has something to do with the hormone **melatonin**. Melatonin is thought to play an active role in regulating the internal body clock, which dictates when humans feel like going to bed at night and getting up in the morning. Although seasonal affective disorder is most common when light is low, it may occur in the spring, which is often called reverse or spring-onset SAD. Some research also has indicated that SAD has a genetic factor; about 29% of cases in the United States run in families.

Causes and symptoms

The body produces more melatonin at night than during the day, and scientists believe the compound helps people feel sleepy at nighttime. There is also more melatonin in the body during winter, when the days are shorter. Some researchers believe that excessive melatonin release during winter in people with SAD may account for their feelings of drowsiness or depression. One variation on this theory is that people's internal clocks may become out of sync during winter with the light-dark cycle, leading to a long-term disruption in melatonin release. Another possible

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Symptoms of seasonal affective disorder (SAD)

- Increased sleep/oversleeping
- Depression
- Lethargy
- Weight gain
- Carbohydrate cravings/overeating
- Decreased sex drive
- Avoidance of social interaction
- Difficulty performing daily tasks
- Mood changes, and in some, periods of mania in the spring and summer
- Anxiety, tension, and inability to tolerate stress

(Illustration by Corey Light. Cengage Learning, Gale)

cause of SAD is that people may not adjust their habits to the season or sleep more hours when it is darker, as would be natural.

Seasonal affective disorder, while not an official category of mental illness listed by the American Psychiatric Association, is estimated to affect at least 10 million Americans. Another 25 million Americans may have a mild form of SAD, sometimes called the winter blues or winter blahs. The risk of SAD increases the further from the equator a person lives. A 1990 study by researchers at the Uniformed Services University of the Health Sciences found a 1.4% incidence of the disorder among people living in Florida, compared with 9.7% among residents of New Hampshire. Other factors that influence the incidence and severity of SAD are sex and age. Women are more likely than men to develop SAD, but men with the disorder are more severely depressed than most women who have it. SAD appears to decrease in severity with age; the elderly have milder SAD symptoms than adolescents.

Comparative studies indicate that the incidence of SAD in the United States and Canada is about twice as high as in European countries at the same latitudes north of the Equator. These findings suggest that cultural factors are also involved in the disorder.

The symptoms of SAD are similar to those of other forms of depression. People with SAD may feel sad, irritable, or tired, and may find themselves sleeping too much. They may also lose interest in normal or pleasurable activities (including sex), become withdrawn, crave carbohydrates, and gain weight.

Diagnosis

Doctors usually diagnose seasonal affective disorder based on the patient's description of symptoms, including the time of year when they occur. There is also a diagnostic questionnaire called the Seasonal Pattern Assessment Questionnaire (SPAQ), used in all Canadian university hospitals and widely used in the United States to assess SAD patients.

Treatment

The first-line treatment for seasonal affective disorder is **light therapy** (also known as phototherapy). The most commonly used phototherapy equipment is a portable lighting device known as a light box. The box may be mounted upright on a wall, or slanted downward toward a table. The patient sits in front of the box for a prescribed period of time (anywhere from 15 minutes to several hours). Some patients with SAD undergo light therapy sessions two or three times daily, and others only once. The time of day and the number of times treatment is administered depend on the physical needs and lifestyle of the patient. Light therapy treatment for SAD typically begins in the fall months as the days begin to shorten and continues throughout the winter and possibly the early spring.

The light from a slanted light box is designed to focus on the table it sits upon, so patients may look down to read or do other sedentary activities during therapy. Patients using an upright light box must face the light source (although they should not look directly into the light). The light sources in these light boxes typically range from 2,500 to 10,000 lux. In contrast, average indoor lighting is 300 to 500 lux, and a sunny summer day measures about 100,000 lux).

A study conducted in 2001 by researchers at the University of Washington School of Medicine found that dawn simulation, a form of light therapy in which the patient is exposed to white light of gradually increasing brightness is even more effective in treating SAD than exposure to bright light. Dawn simulation is started around 4:30 or 5 a.m., while the patient is still asleep.

Patients with eye problems should see an ophthalmologist regularly both before and during light therapy. Because some UV rays are emitted by the light boxes used in phototherapy, patients

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

taking photosensitizing medications and those who have sun-sensitive skin should consult a healthcare professional before beginning treatment. Patients with medical conditions that make them sensitive to UV rays should also see a doctor before starting phototherapy.

Light therapy appears to be safe for most people. However, it can cause side effects of eyestrain, headaches, **insomnia**, **fatigue**, **sunburn**, and dry eyes and nose in some patients. Most of these effects can be managed by adjusting the timing and duration of light therapy sessions. A strong sun block and eye and nose drops can alleviate the others.

Some researchers suspect that small doses of melatonin may be helpful in treating the symptoms of SAD. They argue that the hormone may help people adjust their circadian rhythms so as to develop normal sleep patterns. As of 2008, evidence in support of this hypothesis was inconclusive. Some studies have shown that melatonin treatments can help patients with SAD, while others find no benefit from melatonin therapy in dealing with the symptoms of SAD.

KEY TERMS

Cognitive behavioral therapy—Psychotherapy aimed at helping people change their attitudes, perceptions, and patterns of thinking.

Dawn simulation—A form of light therapy in which the patient is exposed while asleep to gradually brightening white light over a period of an hour and a half.

Lux—The International System unit for measuring illumination, equal to one lumen per square meter.

Melatonin—A naturally occurring hormone involved in regulating the body's internal clock.

Negative air ionization—A procedure by which air molecules are ionized to produce an environment similar to summer air, in which negative ions are more common than they are in winter air.

Serotonin—A chemical messenger in the brain thought to play a role in regulating mood.

Allopathic treatment

Like other types of mood disorders, seasonal affective disorder may also respond to medication and **psychotherapy**. Common drugs prescribed for mood disorders are:

- Selective serotonin reuptake inhibitors (SSRIs), such as fluoxetine (Prozac), paroxetine (Paxil), and sertraline (Zoloft)
- Monoamine oxidase inhibitors (MAO inhibitors), such as phenelzine sulfate (Nardil) and tranylcypromine sulfate (Parnate)
- Lithium salts, such as lithium carbonate (Eskalith), often used in people with bipolar mood disorders, are often useful with SAD patients who also suffer from bipolar disorder (excessive mood swings; formerly known as manic depression)

A number of psychotherapy approaches are useful as well. Interpersonal psychotherapy helps patients recognize how their mood disorder and their personal relationships are interrelated. Cognitive-behavioral therapy explores how the patient's view of the world may be affecting mood and outlook.

A new treatment for SAD that is still in the experimental phase is the use of high-density negative air ionization. A 2006 study by Michael Terman and Jiuan Su Terman at Columbia University and New York State Psychiatric Institute found that high-density (but not low-density) negative air ionization produced significant benefits for patients with SAD. They recommended the therapy for patients who do not benefit from post-awakening bright light therapy, which they regard as still the most affective treatment for SAD.

Expected results

Most patients with seasonal affective disorder respond to light therapy, dawn simulation, and/or antidepressant drugs. Others respond to sleeping more hours in a dark room. Some researchers estimate that as much as 9.5 hours of sleep are important in winter months and that sleeping more increases the person's levels of natural melatonin.

Resources

BOOKS

Rohan, Kelly. *Seasonal Affective Disorder (Treatments that Work)*. New York: Oxford University Press, 2008.

Rosenthal, Norman E. *Winter Blues: Everything You Need to Know to Beat Seasonal Affective Disorder*, rev. ed. New York: Guilford Press, 2006.

Smith, Laura L., and Charles H. Elliott. *Seasonal Affective Disorder for Dummies*. Indianapolis, IN: For Dummies, 2007.

PERIODICALS

Lewy, Alfred, et al. "Circadian Uses of Melatonin in Humans." *Chronobiology International* (2006): 403–412.

Oyane, Nicolas M., et al. "Self-reported Seasonality Is Associated with Complaints of Sleep Problems and

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Deficient Sleep Duration: The Hordaland Health Study." *Journal of Sleep Research* (March 2008): 62–72.
Westrin, Åsa, and Raymond W. Lam. "Long-Term and Preventative Treatment for Seasonal Affective Disorder." *CNS Drugs* (November 2007): 901–909.
Winkler, Dietmar, et al. "Treatment of Seasonal Affective Disorder." *Expert Review of Neurotherapeutics* (July 2006): 1039–1048.

ORGANIZATIONS

Depression and Bipolar Support Alliance, 730 N. Franklin St., Suite 501, Chicago, IL, 60610, (312) 642-0049, http://www.ndmda.org/.
National Institute of Mental Health, Mental Health Public Inquiries. 5600 Fishers Lane, Room 15C-05, Rockville, MD, 20857, (888) 826-9438, http://www.nimh.nih.gov.
Society for Light Treatment and Biological Rhythms, 4648 Main St., Chincoteague, VA, 23336, http://www.sltbr.org.

Paula Ford-Martin
Rebecca J. Frey, PhD
David Edward Newton, Ed.D.

Seaweed *see* **Kelp**
Seaweed, sargassum *see* **Sargassum seaweed**
Seborrhea *see* **Cradle cap**
Seizure disorder *see* **Epilepsy**

Recommended dietary allowance of selenium

Age	mcg/day
Children 1-3 yrs.	20
Children 4-8 yrs.	30
Children 9-13 yrs.	40
Adolescents 14-18 yrs.	55
Adults ≥ 19 yrs.	55
Pregnant women	60
Breastfeeding women	70

Foods that contain selenium	mcg
Brazil nuts (from Brazil), 1 oz.	544
Egg, 1 whole	14
Fish (cod, shellfish, tuna) 1 oz.	10-20
Enriched noodles or macaroni, 1 cup	10
Rice, white, 1 cup	10
Organ and muscle meat, 1 oz.	8-12
Turkey or chicken, 1 oz.	7-11
Rice, brown, long-grain, 1 cup	7
Cheddar cheese, 1 oz.	5
Walnuts, 1 oz.	5
Oatmeal or bran, 1 cup	3-4
Garlic, 1 oz.	0.25

mcg = microgram

(Illustration by GGS Information Services. Cengage Learning, Gale)

Selenium

Description

Selenium (Se) is a nonmetallic element with an atomic number of 34 and an atomic mass of 78.96. No commercially important ores of selenium exist. It is usually obtained as by-product in the refining of **copper** sulfide, with which it occurs as an impurity. Selenium occurs naturally in organic form in two unusual **amino acids**, selenomethionine and selenocysteine.

General use

The role of selenium in human **nutrition** and other therapeutic applications provoked intense controversy from about 1980 into the late 2000s. In contrast to such major minerals as **magnesium** and **calcium**, neither selenium's benefits nor its toxic aspects were fully understood as of 2008. In the late twentieth century selenium was considered a toxic element that was not necessary to human health. In 1989, however, selenium was reclassified as an essential micronutrient in a balanced human diet when the National Research Council established the first recommended daily allowance (RDA) for it. It is considered a minor mineral, or a *trace element*, as distinct from a *major mineral* such as calcium or **phosphorus** or an *electrolyte* such as **sodium** or chloride. The human body contains less than 1 mg of selenium. The selenium is concentrated in the liver, kidneys, and pancreas. In males, selenium is also found in the testes and seminal vesicles. Selenium has a variety of applications in the late 2000s, ranging from standard external preparations for skin problems to experimental and theoretical applications in nutrition and internal medicine.

Alternative medicine

Naturopaths use selenium supplements to treat **asthma**, **acne**, **tendinitis**, **infertility** in men, and postmenopausal disorders in women. Selenium is also considered an important component in naturopathic life extension (longevity) **diets** because of its role in tissue repair and maintaining the youthful elasticity of skin.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Dermatology

Selenium has been used since the 1960s in **dandruff** shampoos and topical medications for such skin disorders as folliculitis (hot tub syndrome) and tinea versicolor, a mild infection of the skin caused by the yeast-like fungus *Pityrosporum orbiculare*. A compound of selenium, selenium sulfide, has antibiotic and antifungal properties. It is absorbed by the outermost layer of skin cells, the epithelium. Inside the cells, the compound splits into selenium and sulfide ions. The selenium ions counteract the enzymes that are responsible for producing new epithelial cells, thus lowering the turnover of surface skin cells. As a result, **itching** and flaking of the skin associated with dandruff and tinea versicolor is reduced.

Nutrition

Prior to 1989, there were no established recommended daily allowance (RDA) values for selenium. In 1989, the National Research Council of the National Academy of Sciences defined the RDAs for selenium as follows: Children, less than six months of age: 15 mcg/day; seven to 12 months: 20 mcg/day; males and females, one to three years: 20 mcg/day; four to eight years: 30 mcg/day; nine to 13 years: 40 mcg/day; males, over 14 years: 55 mcg/day; females, over 14 years: 60 mcg/day; pregnant and lactating women: 70 mcg/day.

The amount of selenium in the diet is influenced by its level in the soil. Most selenium is absorbed from food products, whether plants grown in the soil or animals that have eaten the plants. Much of the selenium in foods is lost during processing. About 60% of dietary selenium is absorbed as food passes through the intestines. Selenium leaves the body in the urine and feces; males also lose some selenium through ejaculation of semen. Selenium levels in soil vary widely, not only in different countries but also across different regions. For example, in the United States, the western states have higher levels of selenium in the soil than the eastern states. South Dakota has the highest rates of soil selenium in the United States, while Ohio has the lowest.

Foods that are high in selenium contain the element in an organic form, selenomethionine or selenocysteine. This form of selenium is considerably less toxic than inorganic compounds of selenium or elemental selenium. Good sources of selenium include brewer's yeast, **wheat germ**, wheat bran, **kelp** (seaweed), shellfish, Brazil nuts, barley, and oats. Onions, **garlic**, mushrooms, broccoli, and Swiss chard may contain high amounts of selenium if they are grown in selenium-rich soil. Selenium is also present in drinking water in some parts of the world and can be added to drinking water as a health measure. Nursing mothers should note that human milk is much richer in selenium than cow's milk.

There is no widely recognized deficiency syndrome for selenium, unlike the syndromes associated with calcium or magnesium (hypocalcemia and hypomagnesemia, respectively). However, many researchers who have investigated Keshan disease (also known as Kashin-Beck disease), a form of **heart disease** in children, believe that it is caused by selenium deficiency. The disease can be prevented but not cured with supplemental selenium; it responds to treatment with 50 g per day. The symptoms of Keshan disease, which is named for the region of China where it was discovered, include enlargement of the heart and congestive heart failure. The soil in the Keshan region is low in selenium. The researchers observed that the local Chinese treat Keshan disease with **astragalus** (*Astragalus membranaceus*), a plant that absorbs selenium from the soil.

Selenium toxicity was a matter of controversy in the late 2000s. Humans can show symptoms of selenium toxicity after doses as low as 1 mg of sodium selenite, the element's most common inorganic compound in nature. By contrast, some researchers speculate that the organic forms of selenium may accumulate in the body and interfere with the functioning of **sulfur** molecules in the body or that they may cause genetic mutations. These longstanding questions await further research. In addition, researchers disagree about how much selenium will produce symptoms of toxicity. It has been suggested that toxicity can result from a daily intake of 2 mg in people who already have body stores of 2.5 mg of selenium or higher. Another measurement suggests that selenium toxicity may occur wherever the food or water regularly contains more than 5 to 10 parts per million of selenium. Patients with symptoms of selenium toxicity usually have blood plasma levels of 100 g/dL or higher, which is about four times the upper limit of normal levels.

The symptoms of selenium toxicity are not always clearly defined. People living in areas of selenium-rich soil sometimes develop heart, eye, or muscular problems. Eating foods containing high amounts of selenium over a long period of time increases the risk of tooth decay. It is thought that the selenium may compete with the fluoride in teeth, thus weakening their structure. Other symptoms associated with high levels of selenium include a metallic taste in the mouth, garlic-like breath odor, **dizziness**, **nausea**, skin inflammation, **fatigue**, and the loss of hair or nails. The symptoms of acute selenium poisoning include **fever**, kidney and liver damage, and eventual death.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Internal medicine

Selenium is most widely recognized as a substance that speeds up the metabolism of fatty acids and works together with **vitamin E** (tocopherol) as an antioxidant. **Antioxidants** are organic substances that are able to counteract the damage done to human tissue by oxidation (the breakdown of fatty acids). Selenium's antioxidant properties have been studied with respect to several diseases and disorders. In addition, selenium appears to work as an anti-inflammatory agent in certain disorders.

CARDIOVASCULAR DISEASES. Low levels of selenium have been associated with high risk of heart attacks and strokes. It is thought that the antioxidant properties of selenium can help prevent **atherosclerosis** (narrowing and hardening of the arteries) by decreasing the formation of fatty deposits in the arteries. It does so by soothing the inflamed arterial walls and binding the free radicals that damage the tissues lining the arteries. Other studies indicate that selenium reduces the symptoms of **angina** pectoris.

CATARACTS. **Cataracts** contain only one-sixth as much selenium as normal lens tissue. The healthy lens requires adequate levels of three antioxidant enzymes: superoxide dismutase, catalase, and **glutathione** peroxidase. Glutathione peroxidase in the human eye is dependent on selenium, which suggests that a selenium deficiency speeds up the progression of cataracts.

CANCER. Low dietary levels of selenium have been associated with an increased incidence of **cancer**. Cancers of the respiratory system and the gastrointestinal tract seem to be especially sensitive to the level of selenium in the body. In one study, patients with histories of **skin cancer** were given 200 g of selenium per day. Results indicated that the patients had a reduced incidence of rectal, prostate, and lung cancers as well as a lower rate of mortality from all cancers. In addition, cervical dysplasias (abnormal growths of tissue) in women are associated with low levels of selenium in the women's diet. In animal studies, as little as 1–4 parts per million of selenium added to the water or food supply is associated with a decreased incidence of cancer. As of 2008, it was not known, however, exactly how selenium protects against cancer. Some researchers believed that it may prevent mutations or decrease the rate of cell division, particularly on the outer surfaces of the body. One study of the effects of a selenium compound on mammary tissue indicated that selenium may inhibit the growth of tumors in deeper layers of tissue, not just cancers arising from the epithelium.

Some researchers have explored the possibility that selenium may reduce the risk of **prostate cancer**. As of 2008, studies on the question were inconclusive, with the best evidence pointing to the element's effectiveness among certain groups of men, but not in males in general.

PERIODONTAL DISEASE. Selenium appears to speed up the healing of fragile gum tissue as well as opposing the actions of free radicals, which are damaging to gum tissue.

RHEUMATOID ARTHRITIS. Selenium may be useful for treating several autoimmune diseases, especially lupus and **rheumatoid arthritis** (RA). It has been found that patients suffering from RA have low selenium levels. Selenium is necessary for production of the enzyme glutathione peroxidase, which reduces the production of inflammatory substances in the body (prostaglandins and leukotrienes) as well as opposing free radicals. Although supplemental selenium by itself has not been shown to cause improvement in RA, selenium taken together with vitamin E appears to have measurable positive results.

OSTEOARTHRITIS. Research indicates that selenium is beneficial in the prevention and treatment of **osteoarthritis** (OA), particularly OA resulting from physical wear and tear or structural problems in the patient's joints. Selenium supplements are even more effective when given together with vitamins in treating OA.

Preparations

Selenium is available in topical preparations and as a dietary supplement.

External preparations

Selenium sulfide for the treatment of dandruff is available as over-the-counter (OTC) scalp preparations or shampoo containing 1% or 2.5% solutions of the drug. A topical 2.5% solution of selenium sulfide is available for the treatment of tinea versicolor. Common trade names include Exsel, Selsun, and Selsun Blue.

Dietary supplements

Selenium is widely available in vitamin/mineral dietary supplements and in nutritional antioxidant formulas. Although the average diet supplies enough selenium, some naturopaths recommend daily supplements of 100–200 mcg for adults and 30–150 mcg for children. Sexually active males are advised to take higher doses. Some naturopaths recommend taking selenium together with vitamin E on the grounds

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

that their combined effect is greater than the sum of their individual effects. As of 2008, there were no definitive studies on the positive effects on health of selenium taken as a dietary supplement.

Precautions

Topical preparations

Persons using selenium compounds to control dandruff or tinea versicolor should be careful to avoid applying the product to damaged or broken skin. In addition to irritating skin, selenium can enter the body through broken skin. This process, known as percutaneous absorption, can cause selenium toxicity if the preparation is used for a long period of time. Patients should wash their hands carefully after applying the selenium product to affected areas. Doing so will minimize absorption through small breaks in the skin of the hands.

Nutritional supplements

It is difficult to assess the effectiveness of dietary supplements containing selenium because as of the late 2000s there was little agreement on standards for interpreting selenium levels in human blood. Depending on their intake, healthy adults may have blood plasma levels of selenium in the range of 8–25 mcg/dL. In addition, most of the selenium in the body is not carried in the blood but is stored in tissue. Analysis of hair has not been useful in measuring selenium. In the absence of a useful test, people who wish to take supplemental selenium should first find out whether they live in an area that already has high levels of selenium in the drinking water and soil. Most people probably do not need more selenium than is in standard vitamin/mineral supplements. In addition, the body seems to utilize selenium more efficiently when it is taken together with vitamin E.

Side effects

The side effects of contact with compounds containing selenium sulfide include stinging of the skin, irritation of the lining of the eyes, hair discoloration or loss, and oily scalp. Both topical products and megadoses of selenium taken by mouth can cause selenium toxicity. The symptoms of selenium toxicity include nausea, **vomiting**, tiredness, abdominal **pain**, a garlicky breath odor, and the loss of hair and fingernails. These symptoms usually last 10–12 days after the selenium preparation is discontinued.

KEY TERMS

Antioxidant—A substance that works to counteract the damage done to human tissue by the breakdown of fatty acids. Dietary antioxidants include beta-carotene and vitamins C and E as well as selenium.

Epithelium—The layer of tissue that covers body surfaces and lines the inner surfaces of body cavities and hollow organs.

Free radical—A highly reactive molecule that binds to and destroys compounds in tissue cells. Most free radicals in the human body are produced in the body, while others come from the environment and foods.

Glutathione peroxidase—An enzyme that functions as an antioxidant, in the activation of other enzymes, and in the transport of minerals and amino acids. Human glutathione is dependent on selenium.

Keshan disease—A form of heart disease in children, first discovered in the Keshan region of China. It may represent a selenium deficiency syndrome.

Percutaneous absorption—The process by which certain strong medications, such as selenium compounds, can enter the body through the skin.

Trace element—An element that is required in only minute quantities for the maintenance of good health. Trace elements are also called micronutrients.

Interactions

Topical preparations containing selenium may interact with the metals in costume jewelry. Patients should remove all their jewelry before applying the shampoo or lotion.

With regard to dietary supplements, there is some evidence that **vitamin C** inactivates selenium within the digestive tract. Persons who are concerned about their selenium intake may prefer to take supplemental selenium in the absence of vitamin C. As with all supplement use, consultation with a healthcare professional is advised.

Resources

BOOKS

Mann, Jim, and Stewart Truswell, eds. *Essentials of Human Nutrition*, 3rd ed. New York: Oxford University Press, 2007.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Surai, Peter. *Selenium in Nutrition and Health*. Nottingham, UK: Nottingham University Press, 2006.

PERIODICALS

Cheung, Eric, et al. "Diet and Prostate Cancer Risk Reduction." *Expert Review of Anticancer Therapy* (January 2008): 43–50.

Kalantari, Parisa, et al. "Nutritional Control of HIV-AIDS: A Case for Selenium." *American Journal of Infectious Diseases* (October 2007): 195–201.

"Selenium May Increase Type 2 Diabetes Risk." *Inpharma* (September 22, 2007): 16.

Williams, Rebecca. "Acute Selenium Toxicity: Australia's Second Fatality." *Pathology* (April 2007): 289–290.

Rebecca J. Frey, PhD
David Edward Newton, Ed.D.

Senior nutrition

Definition

Senior **nutrition** addresses the special dietary requirements of the elderly. Although wise food choices and a balanced diet are essential for older adults to maintain a healthy lifestyle and to promote longevity, there are various obstacles that prevent or limit seniors from practicing and benefiting from good eating habits. Such obstacles include loneliness, **depression**, economic concerns, lack of cooking skills or desire to cook, inadequate nutritional knowledge, reduced capacity to absorb and utilize nutrients, oral/dental problems and difficulty in chewing, loss of appetite, and eating/nutrient complications due to the use of various medications. In addition, older adults need certain vitamins and nutrients to aid in the maintenance of their health.

Origins

After age 50, adults experience significant reduction in metabolism (the rate at which the body **burns** energy) and changes in physiology that significantly affect their nutritional needs. These changes are often significant; for example, the metabolic rate of an individual can decline as much as 30% over the lifetime. These changes often call for decreased-calorie **diets**, but there are many complications that can affect a senior's balance of food intake and energy needs.

Aging causes a decrease in lean tissue mass and an increase in body fat. These changes are significant because an older person utilizes dietary protein less efficiently and may need more than the recommended amount of high-quality protein to maintain lean tissue mass. Lean muscle mass can decrease by as much as 25%, accompanied by an increase in body fat. Complications may also arise because of

Recommended amount of calories for adults over the age of 50

	Low physical activity	Moderate physical activity	High physical activity
Men	2,000	2,200-2,400	2,400-2,800
Women	1,600	1,800	2,000-2,200

Suggested daily servings from the major food groups

Grains	5-10 ounces (with at least three oz. from whole grains)
Vegetables	2-3 1/2 cups, with a variety of color and type
Fruits	1 1/2 to 2 1/2 cups
Milk, yogurt, cheese	3 cups of milk (1 cup of yogurt, 1 1/2 to 2 oz. of cheese, or 2 cups of cottage cheese are equivalent to one cup of milk)
Meat, poultry, fish, dry beans, eggs, nuts	5-7 oz. of lean meat, poultry or fish (1/4 cup of cooked beans or tofu, 1 egg, 1/2 oz of nuts or seeds, or 1 tablespoon of peanut butter are equivalent to one ounce of meat.

Selecting the smallest serving amounts will result in 1,600 calories per day; the largest servings will add up to approximately 2,800 calories.

(Illustration by Corey Light. Cengage Learning, Gale)

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Senior nutrition

Health risks of underweight older adults

- Constipation
- Decreased immunity
- Decreased muscle strength
- Hypothermia (lowered body temperature)
- Osteoporosis (bone loss)
- Poor memory

Health risks of overweight or obese older adults

- Coronary heart disease
- High blood cholesterol
- High blood pressure
- Gallbladder disease
- Some types of cancer
- Stroke
- Type 2 diabetes

SOURCE: National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health, U.S. Department of Health and Human Services

(Illustration by GGS Information Services. Cengage Learning, Gale)

age-related digestive problems, oral/dental problems, and eating/nutrient problems related to medication. Other complicating factors for the elderly include loneliness, depression, economic concerns, and lack of cooking skills and nutritional knowledge (such as eating too many processed/refined foods of low nutritional value). These factors often result in seniors under-consuming the proper foods to meet their energy and nutrient requirements and can lead to weakness, chronic **fatigue**, and a weakened immune system.

Benefits

Nutritional studies have clearly demonstrated that sound dietary habits adopted by seniors can promote longevity and reverse some of the effects of aging, reduce the risks and severity of illness and disease, increase overall levels of wellness and vitality, and improve quality of life.

The three leading causes of death among adults are **heart disease**, **stroke**, and **cancer**. Diabetes, **atherosclerosis**, and liver disease are also in the top ten causes of human mortality. All of these diseases have been correlated with dietary habits and alcohol intake, and research has shown that these and many other diseases can be reversed or eliminated through dietary and lifestyle changes. Seniors, who face the most risk from these diseases, can therefore greatly benefit from healthy nutritional practices, especially if they are initiated early in life.

Description

Nearly 90% of Americans above age 65 have one or more degenerative disorders (diseases that develop over time), including heart disease, cancer, arthritis, diabetes, and **osteoporosis**. Once considered diseases of old age, these conditions were later seen as lifestyle-related diseases, which means that changes in habits, including diet, can significantly reduce their risks. For instance, Dean Ornish, a California cardiologist, demonstrated that heart disease could be reversed by a low-fat, vegetarian diet combined with **exercise** and **stress** reduction techniques such as **meditation** and **yoga**. Furthermore, it has been strongly demonstrated that improper diet is directly correlated with disease and premature aging. **Obesity**, for example, shortens life expectancy and increases the risk of diabetes, **hypertension**, and heart disease. For seniors, it is never too late to adopt informed nutritional practices to improve health and chances for longer, healthier life.

Longevity studies (in which researchers attempt to determine the behaviors that contribute to long life in human populations) have shown that moderation is a key component to a life-extending diet. In the longest-living people, stability of overall body weight—in which people remain consistently at no more than 5% under their ideal weight or no more than 10 to 20% overweight—implying moderation of diet, has been found to be very important. Moderation of alcohol intake, meaning no more than two drinks per day, is also important, as is eating breakfast every day. As people age and metabolism slows, it easier to gain weight and harder to lose weight after it is put on. This underscores the importance for seniors to adopt diets that reduce large fluctuations in weight.

In the marketplace of dietary knowledge, the numerous fads and claims can be extremely confusing for the conscientious eater. For instance, there are diets that restrict fats and favor carbohydrates, such as the **Ornish diet** mentioned above. Then there are diets that restrict carbohydrates and recommend higher amounts of fats and proteins to be consumed, such as the **Atkins diet** that was very popular into the early 2000s. The confusion can be compounded by the fact that different people and different age groups, including seniors, have different dietary requirements and tastes.

Within the alternative healthcare model, there are many diets that have been shown to improve health. These include **vegetarianism**, **veganism**, the Ornish diet, macrobiotics, the **Mediterranean diet**, juicing, the raw food diet, and others. Seniors may not have the time or energy to experiment with various diets

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

until finding a satisfactory one, nor is it advisable that seniors enforce strict guidelines that might take the pleasure and freedom out of eating and preparing food. Nutrition is made easier within the alternative healthcare model because there are simple principles that can be applied to make any senior's diet more nutritionally sound.

An alternatively healthy diet for seniors contains a wide variety of fresh fruits and vegetables, whole grains, and legumes (peas, lentils and beans, including soybeans and soy products), and is moderate in the consumption of animal products, including meat, eggs, and dairy products. In this diet, the majority of daily calories, or energy, comes from fruits, vegetables, whole grains, legumes, and nuts and seeds, all plant sources. This plant-based diet is naturally high in fiber, which is important for seniors because fiber assists in the digestive process, which is slower and more sensitive in the elderly. Eating fiber also lowers blood **cholesterol**. A sound senior diet also contains adequate protein, derived primarily from vegetable and low-fat animal sources; avoids the intake of saturated fat, which raises cholesterol levels in the blood; and emphasizes the careful intake of healthy fats.

In the alternative healthcare model, there are general principles that make dietary choices easy and uncomplicated, which in itself is important for the elderly. First, food should be as fresh and in as close to its natural state as available. Fresh and natural food contains the highest amount of life energy, sometimes known as *chi* or *prana,* which can be lost when food is overly processed, overcooked, or stale. Furthermore, fresh food, such as fresh fruits and vegetables, contains no harmful food additives and no added ingredients such as sugar and fat, both of which should be moderated by seniors. Fresh and natural foods are also more nutrient dense than processed foods, which means that they contain more vitamins and minerals for the same amount of calories. This is particularly important for seniors, who should strive to maximize the intake of nutrients while maintaining consistent body weight and not consuming more calories than are needed. Foods that contain empty calories—that is, calories without other nutrients, such as foods that are high in sugar or junk foods—should be limited in the diet.

More and more health-conscious people have turned to the alternative of juicing fresh vegetables and fruits as a healthy supplement to daily meals because they provide concentrated essential nutrients, vitamins and minerals, that the body does not have to first chew and digest. This process requires the purchase of a juicer, the price for which runs from $100 to $500.

Another principle within the alternative health model is the holistic view of the world. Humans are connected to the whole living system of the earth. Food choices that are healthiest for the individual would also be healthiest for the earth, and likewise, keeping the earth's living system healthy improves the health of the human population. It has been estimated that worldwide 33% of all disease is related to environmental degradation. Thus, organically grown foods are the healthiest choice for consumers. The production of those foods is safest for people and the environment because they contain no toxic chemicals. Healthy fresh **organic food** choices also eliminate unnecessary packaging and artificial ingredients. Healthy choices also emphasize locally grown foods, which reduce transportation and refrigeration. Finally, eating seasonal fruits and vegetables keeps the diet aligned with the natural rhythm of the seasons.

Food can be broken down into the categories of carbohydrates, fats, and proteins, and nutritional science attempts to determine the optimal quantities of each in the diet. Some diets are very rigorous about the measurement of overall calories and exactly how many carbohydrates, fats, and proteins should be included, but general dietary guidelines should suffice for most seniors.

Carbohydrates are a basic energy source found in foods and can provide up to 70% of daily calories in a senior's diet. The simplest carbohydrates are sugars, such as those found in fruits, honey, table sugar, and corn syrup, while complex carbohydrates are found in whole grains and legumes and other plant and animal sources. Small amounts of sugar are not unhealthy, although sugar is no substitute for nutrient-rich foods. A piece of fresh fruit, for instance, would be a far better choice for a sweet tooth than a soft drink. Sugar can be a factor in tooth decay and obesity, which can lead to heart disease, diabetes, hypertension, **gallstones**, back problems, and arthritis. Complex carbohydrates are a healthier source of energy and fiber, and whole grains, pastas, breads, beans, cereals, fruits, and vegetables are recommended to supply them in the diet.

Seniors should pay close attention to the amount and type of fat in the diet. The Ornish diet, shown to reverse the effects of heart disease, recommends no more than 10% of all calories coming from fat, and cautions against any saturated fats, or those fats that are present mainly in meat and dairy products as well as in tropical oils such as palm and coconut oils, and some nuts and seeds. Some seniors may not need to be this stringent about fats in the diet, but just getting fat content down to 20 to 30% of total calories will reduce

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

the risks of disease and improve overall health. Generally, for seniors, saturated fats should be greatly reduced and avoided as much as possible. The best fats to consume are generally from plant sources, such as olive oil and canola oil, which are the healthiest choices for cooking oils, and occasional use of avocados, nuts, seeds, and nut butters. Clarified butter (ghee) is a substitute for butter, which contains high amounts of saturated fat and should be avoided.

Seniors should also take care to get plenty of **essential fatty acids** (EFAs) in the diet, particularly omega-3 EFA and omega-6 EFA, important nutrients for the elderly and essential fats for the body. Omega-3 EFA is found in cold-water fish such as salmon and mackerel as well as in walnuts, **wheat germ**, and **flaxseed**. EFAs can also be obtained in nutritional supplements such as **evening primrose oil**, wheat germ oil, **borage oil**, flaxseed oil, and hemp seed oil.

Finally, seniors should take care to avoid the consumption of trans-fatty acids (TFAs). These are artificial fats that are created during industrial cooking processes and have been widely implicated in heart disease and atherosclerosis. These unhealthy oils are found in some margarine, vegetable shortening, and partially hydrogenated oils, which are present in many processed foods. Deep-fried foods should also be avoided, which contribute these unhealthy fats to the diet. By paying close attention to ingredients and then avoiding partially hydrogenated oils, seniors can avoid many unhealthy foods.

Proteins are the basic building blocks used by the body. Americans in general consume more protein than is required, and the excess consumption of red meat, dairy products, and eggs, all high in saturated fats, contributes to the prevalence of many degenerative diseases. Seniors should be careful not to eat too much protein, particularly from meat, dairy, and egg sources. Excess protein in the diet can stress the digestive system, liver, and kidneys, and also contribute to the development of osteoporosis, or weakness of the bones due to **calcium** loss, a condition afflicting many seniors, particularly women. Two to four ounces (57–113 g) of protein per day is sufficient for most seniors, which would be a piece of lean meat the size of a deck of cards, or a couple servings of soy or beans. Healthy sources of protein include legumes, tofu, nuts and seeds, low-fat dairy products, fish, egg whites, and lean meats. Soy products are an excellent addition to the senior diet, providing high-quality and low-fat protein while containing several age-protective nutrients.

Other dietary habits can help seniors optimize nutrition. Sound diets contain a variety of wholesome foods. At least five servings per day of fruits and vegetables are recommended. Variety is important to provide a full range of vitamins and minerals and helps seniors avoid eating too much of any food that may not be the healthiest. Furthermore, seniors should strive to eat less rather than more at mealtime and to stop eating while still slightly hungry. Overeating inhibits digestion and causes weight gain, which healthy seniors avoid doing. Regular exercise also contributes to sound nutrition by improving metabolism and digestion and thus the absorption of nutrients by the body. Food choices should not inhibit seniors' autonomy and freedom, but enhance them. Food preparation should emphasize taste and the pleasure of eating. Seniors should also drink plenty of fresh, clean water as part of their diet. Spring water or filtered water is best, and up to eight glasses per day is recommended. Drinking plenty of water prevents dehydration (which can lead to low blood pressure, heat stroke, **nausea**, dryness of mouth, **vomiting**, and **constipation**), improves digestion, and helps the body flush out impurities. **Green tea** is a healthy substitute for coffee, as it contains an antioxidant shown to have anti-aging effects as well as less **caffeine**.

Caffeine is really a drug with many unhealthy side effects. Although it acts quickly on the central nervous system, resulting in almost immediate increased mental clarity and energy, caffeine accumulates in the fat tissues of the body and can lead to nervousness, exhaustion of the adrenal gland, important vitamins and minerals being leeched from the body, increased acidity in the gastrointestinal tract, and it can dangerously increase heart and blood pressure rates when consumed with decongestants or bronchodilators. It is considered by some doctors to be implicated in hypertensive heart disease. Medical schools and journals have linked excessive caffeine consumption to benign breast disease, prostate problems, cancer of the bladder and lower urinary tract, and **heart attack**.

Nutritional and Herbal Supplementation

Seniors can inform and avail themselves of the many nutritional and herbal supplements available for specific health problems by consulting alternative physicians—medical doctors, osteopaths, naturopaths, homeopaths, chiropractors—and herbalists for recommendations. Many physicians who primarily practice conventional medicine can also provide a variety of information about herbs and supplements. Seniors can consult many books on vitamins, minerals, and nutritional/herbal supplements, and a great deal of information on this subject is available on the Internet.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Senior nutrition includes two additional ways in which the elderly can fulfill their nutritional requirements. Although there is ample evidence that a varied and plant-based diet consisting of fresh fruits, vegetables, whole grains, legumes, and moderate amounts of animal products prolongs life expectancy and improves overall health, informed use of nutritional supplements can add extra protection and support for the mature body in the aging process and herbal supplements can be safely used to support the treatment of age-related illnesses and as general health tonics.

It should again be noted that there is general acceptance that the best way for seniors to get plenty of nutrients is through a varied diet because supplements cannot make up for a diet that is not nutritionally balanced in the first place; that nutrients from food sources are more efficiently utilized by the body; that seniors should try to add natural foods to their diets that are high in nutrients known or recommended to help in the treatment of certain disease or degenerative conditions; and that nutritional supplements can then be properly used to supply any extra support or protection that seniors may need.

Generally if a senior is eating a balanced, healthy diet over 1,200 calories a day, vitamin-mineral supplement may be unnecessary. However, some physicians feel much food is grown in soil depleted of nutrients and a high quality, broad spectrum multivitamin and mineral supplement, taken once per day, is recommended to seniors to supplement their diets by providing a range of nutrients. It should contain the B vitamins, B_6 and B_{12}, and **folic acid**, which may help prevent heart disease, and the minerals **zinc** and **copper**, which aid immunity. Some nutritionists advise that seniors should take a multi vitamin/mineral supplement that provides no more than 100% of the recommended daily allowance (RDA), and caution against taking one nutrient by itself because nutrients interact with each other and single-dose nutrient interaction can be harmful, even toxic, and may actually cause a deficiency of another nutrient.

In addition to a multivitamin, many health professionals, however, advise seniors to add **antioxidants** to their supplementation routine. These include **vitamin A** (or **beta carotene**), **vitamin C**, **vitamin E**, and the mineral **selenium**. Antioxidants may have several positive effects on the body, such as slowing the aging process, reducing the risks of cancer and heart disease, and reducing the risks of illness and infection by supporting the immune system.

Coenzyme Q_{10} is an antioxidant that was gaining use as of 2008 by the elderly, as it may retard aging, improve the health of the heart and reduce the effects of heart disease, help lower blood pressure, aid in treatment of periodontal disease, help lower blood pressure, and aid in the prevention of toxicity from drugs used to treat many diseases associated with aging.

Essential fatty acids, particularly omega-3, are also recommended for seniors, as, according to Andrew Weil, author of *Spontaneous Healing,* "they appear to reduce inflammatory changes in the body, protect against abnormal blood clotting, and, possibly, protect against cancer and degenerative changes in cells and tissues."

Calcium supplementation is recommended for the elderly, particularly for women, to strengthen bones and prevent bone loss. Also, the senior stomach may secrete less hydrochloric acid, the enzyme involved in food digestion, which may reduce the amount of calcium that is absorbed. Calcium supplements that are balanced with **magnesium** have less constipating effect and are better absorbed.

Another nutrient concern is sufficient intake of **iron**. Many sources of iron need to be eaten to meet the need for it. While the best source or iron is meat, people can also get iron from whole grains, cooked dry beans, and some fruits and vegetables. Vitamin C aids absorption of iron, so vitamin C foods such as citrus fruits, greens, and tomatoes should be included in the same meal with iron.

The supplement **glucosamine** sulfate together with **chondroitin** and MSN may be useful for seniors with joint problems and **pain**.

Natural sources of fiber, such as **psyllium** seed husks, may be used by those seniors who need added fiber in their diet.

There are many herbs that support vitality and health in old age. In Chinese medicine, ginseng is the fabled elixir of youth, and **astragalus** and ginkgo are also recommended to the elderly. Ginkgo has been shown to enhance memory and brain function. **Grape seed extract** and **pine bark extract** (pycnogenol) are herbal derivatives that have powerful antioxidant, and thus anti-aging, effects in the body. In the Ayurvedic or traditional East Indian system, **ashwaganda** and **gotu kola** are herbs prescribed for their rejuvenating effects on the elderly, and **triphala** is used to improve digestion and as a mild laxative. Seniors can inform themselves of the many herbs available for specific problems and also consult alternative physicians and herbalists for recommendations on herbal supplements.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Arthritis—An inflammatory condition affecting joints.

Atherosclerosis—Disease characterized by hardening and narrowing of the arteries, leading to strokes and heart disease.

Cancer—A disease caused by uncontrolled abnormal cell growth.

Carbohydrates—Digestible sugars and starches in food that are the major sources of energy.

Chi—Basic life energy in Chinese medicine system, contained in food, air, and water.

Diabetes—Lack of the hormone insulin leading to uncontrolled carbohydrate metabolism.

Fats—Long chains of fatty acids that are stored in animal tissue.

Macrobiotics—A diet emphasizing grains, certain vegetables, legumes, and fish.

Osteoporosis—A reduction in the amount of bone mass leading to fractures after minimal trauma.

Prana—Basic life energy, found in food, air, and water, as defined in the East Indian Ayurveda and yoga philosophies.

Proteins—Organic compounds of amino acids in vegetable and animal matter.

Saturated fat.—A fatty acid that is totally hydrogenated (chemically bound) and holds the greatest risk for development of atherosclerosis.

Stroke—A blood clot or blood vessel bursting and interrupting blood flow to the brain, which may cause coma, paralysis, speech problems, and dementia.

Vegetarianism—The theory or practice of living only on vegetables and fruits.

Vegan—A vegetarian who excludes animal products from the diet and from other uses.

Resources

BOOKS

Bales, Connie Watkins, and Christine Seel Ritchie, eds. *Handbook of Clinical Nutrition and Aging*. Totowa, NJ: Humana Press, 2003.

Dangour, Alan, Emily Grundy, and Astrid Fletcher, eds. *Ageing Well: Nutrition, Health, and Social Interventions*. Boca Raton, FL: CRC Press, 2007.

PERIODICALS

Vegetarian Times. http://www.vegetariantimes.com (April 23, 2008).

OTHER

Vegetarian Resource Group. http://www.vrg.org (April 23, 2008).

ORGANIZATIONS

Center for Science in the Public Interest, 1875 Connecticut Ave. NW, Suite 300, Washington, DC, 20009, (202) 332-9110, http://www.cspinet.org.

National Institute on Aging, Building 31, Room 5C27, 31 Center Drive, MSC 2292, Bethesda, MD, 20892, (301) 496-1752, http://www.nia.nih.gov.

United States Administration on Aging, 330 Independence Ave. SW, Washington, DC, 20201, (202) 619-0724, http://www.aoa.gov.

United States Department of Agriculture Food and Nutrition Information Center, 10301 Baltimore Ave., Department of Agriculture, Beltsville, MD, 20705-2351, (301) 504-5719, http://www.nal.usda.gov/fnic/.

Douglas Dupler
Ruth Ann Carter
Helen Davidson

Senna

Description

Senna, *Cassia angustifolia*, is known by the name Egyptian senna. A member of the Leguminaceae family, senna is a shrub-like plant whose leaves and pods have been used for centuries in the East and West as a purgative. This property of senna was first described in the ninth century A.D. by Arabian physicians in the service of the caliph of Baghdad. Senna's reputation as a powerful laxative has grown through the ages. Today, senna can be found as an ingredient in many over-the-counter laxative products in the United States. Senna is also considered an important herb in **traditional Chinese medicine** and Indian Ayurvedic and unani medicine. The two species used most often for medicinal purposes are Alexandrian senna and Tinnevelly senna. The Alexandrian variety is obtained mainly from Egypt and the Sudan. Tinnevelly senna is primarily cultivated in India.

Senna contains naturally occurring chemicals called anthraquinone glycosides. They are strong stimulant laxatives that soften stools and increase muscle contractions of intestine, thereby increasing bowel movements. "Like **aloe**, **buckthorn**, and cascara sagrada, senna contains anthraquinone glycosides, chemicals that stimulate the colon," reports James A. Duke, Ph.D. Senna usually starts to work in three to nine hours. Anthraquinone laxatives, such as senna, are believed to alleviate **constipation** by increasing the

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Senna (Cassia angustifolia). *(© Holt Studios International Ltd. / Alamy Ltd / Alamy)*

amount of water and electrolytes in the intestine. They also work by stimulating contractions of the colon muscles, which help to accelerate the passage of stool. Senna is considered among the strongest of the anthraquinone laxatives. Its effectiveness as a purgative has been supported by centuries of anecdotal reports as well as modern human and animal studies.

KEY TERMS

Albuminuria—The presence of high levels of the protein albumin in the urine.

Electrolytes—Substances in the blood, such as sodium and potassium, that help to regulate fluid balance in the body.

Hematuria—The presence of blood in the urine.

Lazy bowel syndrome—An inability to have a bowel movement without the aid of chemical laxatives.

Licorice root—An herb believed to be helpful in treating ulcers, respiratory problems, and a variety of other conditions.

Purgative—A substance that encourages bowel movements.

Stimulant laxatives—Powerful laxatives that increase the frequency of bowel movements by stimulating muscle contractions that accelerate the passage of stool.

General use

Senna is widely accepted as a stool softener and a short-term treatment for constipation. Senna leaf is approved by the World Health Organization (WHO) for short-term use in occasional constipation. Senna is also approved in the United States and in European countries as an ingredient in over-the-counter and prescription laxative preparations. The herb is approved by the German government for any condition in which alleviating constipation or softening stools is desirable. Senna may be recommended for people with hemorrhoids, anal fissures, or those undergoing surgery involving the abdomen, anus, or rectum. Senna may also be used to clear the bowel in order to improve the visibility of abdominal organs during an ultrasound procedure.

Clinical studies in the United States and abroad involving various age groups suggest that senna is effective in managing constipation associated with a number of causes including surgery, childbirth, and use of narcotic **pain** relievers. A study in the medical journal *Diseases of the Colon and Rectum* showed that senna was able to prevent or treat postoperative constipation after proctologic surgery. The *South African Medical Journal* shows that treatment with senna was successful in 93%-96% of women suffering from postpartum constipation. By comparison, only 51%-59% of women in the placebo group experienced relief. Senna is considered to be one of the more effective agents for relieving constipation caused by narcotic pain relievers such as morphine. In another study, published in the *Journal of Pain and Symptom Management*, researchers recommended the use of senna in terminal **cancer** patients with opiate-induced constipation, citing the effectiveness of the herb and its relatively low cost. A study published in the medical journal *Pharmacology* suggests that a combination of senna and bulk laxatives can alleviate chronic constipation in geriatric patients.

Preparations

The recommended dosage of senna, which is generally taken at bedtime, ranges from 0.6-2.0 g a day. Tablets, syrups, oral solutions, and other medications that list senna as an ingredient usually contain standardized amounts of the herb and its active agents. People who choose to prepare senna using unprocessed leaves or pods may have difficulty determining exact dosages. No matter which form or preparation of senna is chosen, using the lowest effective dosage helps to avoid side effects.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Consumers who wish to brew a medicinal tea from unprocessed senna should use 1-2 tsp of the dried leaves of the herb per cup of boiling water and let it steep for about 10 minutes. Senna is generally considered to have an unpleasant taste, so adding sugar or honey to the mixture may help to make it more palatable. **Anise**, **ginger**, chamomile, coriander, **fennel**, and **peppermint** can also be added to the tea to improve its taste and to reduce **gas** and cramping. Up to one cup of senna tea a day is recommended to alleviate constipation. It should not be taken for longer than one or two weeks.

Precautions

Senna and other stimulant laxatives should not be used for longer than two to four weeks without medical supervision. Using senna longer than recommended can result in lazy bowel syndrome and permanent damage to the intestinal lining. Chronic use or misuse can also cause electrolyte and fluid imbalances, which can have adverse effects on the heart. To prevent or treat constipation, most doctors recommend making dietary changes or trying milder, bulk-forming laxatives such as **psyllium** before using senna or other anthraquinone purgatives. Dietary approaches involve eating a high-fiber diet, drinking six to eight glasses of water a day, and getting plenty of regular **exercise**.

Unless otherwise indicated by a doctor, senna should not be used by anyone with an intestinal obstruction, stomach inflammation, or intestinal inflammatory diseases such as Crohn's disease, colitis, **irritable bowel syndrome**, or appendicitis. Senna should also be avoided by those with undiagnosed abdominal pain. Senna should not be used by children younger than age 12. Senna should not be used by pregnant or breast-feeding women. It may significantly reduce drug absorption and lessen the efficiency of any over-the-counter or prescription medication. Children and seniors, who may be more susceptible to senna's effects, should start with smaller dosages of the herb.

Side effects

Stimulant laxatives such as senna tend to have more side effects than other purgatives, so it is important to take the lowest effective dosage. The side effects of senna include stomach cramps, diarrhea , and gas, which can be severe if the herb is used longer than recommended or in large amounts. The effects of senna can be immediate, sometimes too fast or intense. These problems may be avoided by reducing the dosage and adding other herbs. More serious effects include fainting, dehydration, and electrolyte disorders such as low blood potassium, albuminuria, and hematuria. **Potassium** deficiency can lead to muscle weakness and disorders of heart function. Potassium levels may drop even further if senna is combined with cardiac glycoside medications, diuretics, or corticosteroids. People using diet pills or teas should be sure that if senna is an ingredient they use the products short term (a month or less).

Interactions

Because of its potential effect on potassium levels, senna should not be combined with anti-arrhythmic drugs, thiazide diuretics, corticoadrenal steroids, or **licorice** root without the supervision of a doctor.

Resources

BOOKS

Duke, James A,. Michael Castleman, and Alice. Feinstein. *The Green Pharmacy*. Rodale Press, 1997.

Foster, Steven and Varro E. Tyler. *Tyler's Honest Herbal: A Sensible Guide to the Use of Herbs and Related Remedies*. Haworth, 1998.

Goldberg, Burton. *Alternative Medicine: The Definitive Guide*. Future Medicine Publishing, 1993.

PERIODICALS

Agra, Y. Sacristan and M.A. Gonzalez. "Efficiency of Senna versus Lactulose in Terminal Cancer Patients Treated with Opioids." *Journal of Pain and Symptom Management* (1998) 15(1): 1-7.

Corman, M.L."Management of Postoperative Constipation in Anorectal Surgery." *Diseases of the Colon and Rectum* (1979) 22(3): 149-51.

"Go for Natural Laxative Relief, but Best if not from Senna or Cascara." *Environmental Nutrition* (May 2002): 7.

Shelton, M.G."Standardized Senna in the Management of Constipation in the Puerperium: A Clinical Trial." *South African Medical Journal* (1980) 57(3): 78-80.

ORGANIZATIONS

American Botanical Council. P.O. Box 144345, Austin, TX 78714-4345. (512) 926-4900. http://www.herbalgram.org.

Herb Research Foundation.1007 Pearl Street, Suite 200, Boulder, CO 80302. (303) 449-2265. Info@herbs.org. http://www.herbs.org.

OTHER

Prevention Magazine. http://www.prevention.com.

Greg Annussek
Teresa G. Odle

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Sensory deprivation

Definition

Sensory deprivation, or Restricted Environmental Stimulation Therapy (REST), is a technique by which sensory input (sound, light, smell, etc.) is minimized. This practice encourages an extremely deep level of **relaxation**. REST is typically conducted in a float tank, in which the person is suspended in a solution of warm water and Epsom salt, without sound or light. This relaxation technique produces significant physical and mental benefits.

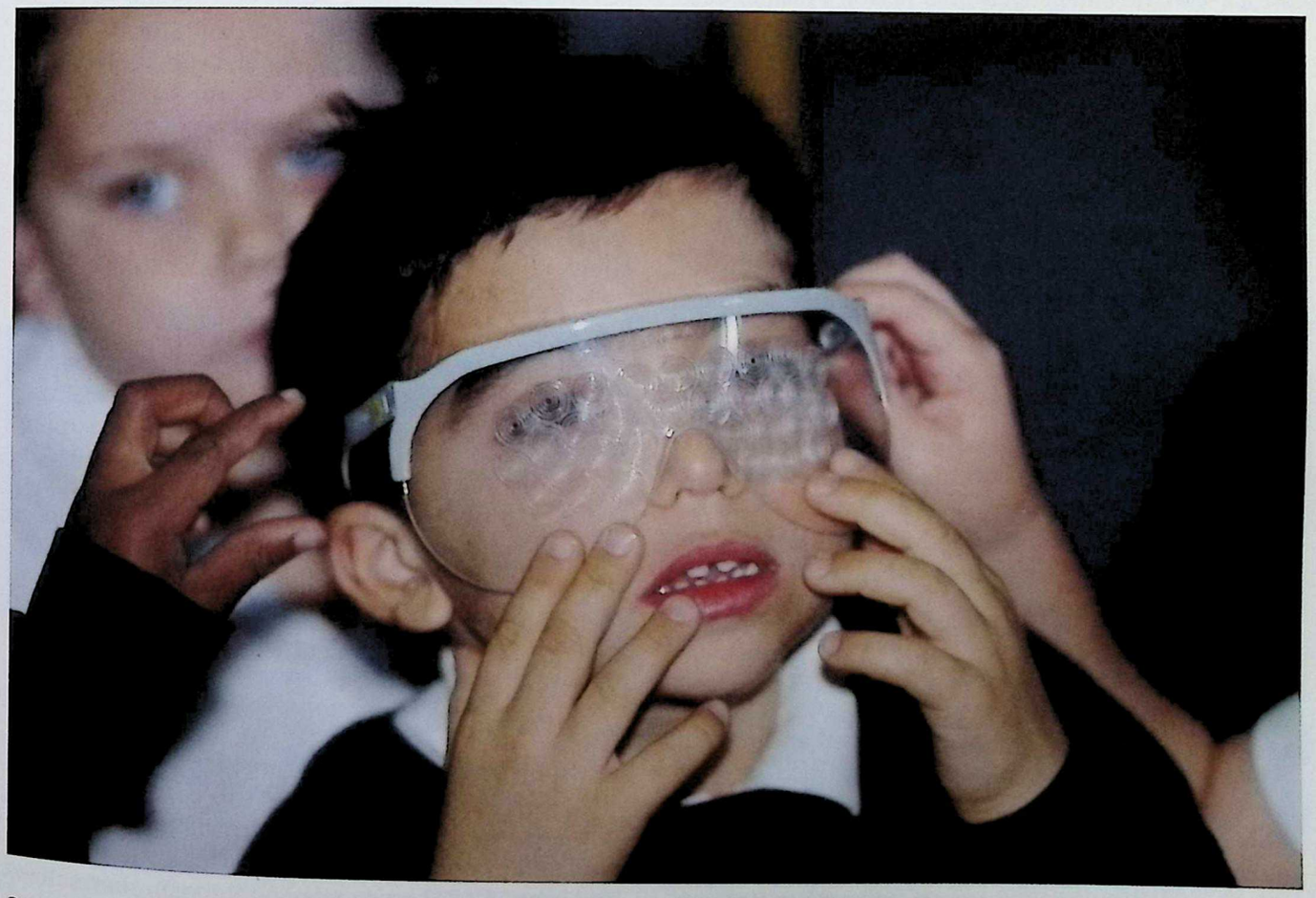
Origins

In the 1950s, sensory deprivation experiments were conducted to determine the effects of restricted environmental stimulation on mental and physical functions. For 24 hours a day, students were confined to a bed in cramped cubicles with their vision and hearing blocked by various means, such as opaque goggles and u-shaped pillows around their heads. The students' physical and psychological functions quickly deteriorated under these harsh conditions.

In 1954, Dr. John Lilly, a neurophysiologist at the National Institute of Mental Health in Bethesda, Maryland, developed the Floatation Restricted Environmental Stimulation Technique. By suspending a person in water, external stimuli (such as light and sound) were reduced almost completely, but without the harsh conditions of similar experiments.

Dr. Lilly refined his technique between 1960 and 1970, allowing subjects to float freely in an Epsom salt and water solution contained within a dark, soundproof chamber. The solution was warmed to skin temperature so that the person would not react to cold or heat.

From his experiments, Lilly determined that external stimuli such as gravity, light, sound, and touch, accounted for 90% of the central nervous system's workload. Although extended sensory deprivation could be harmful, extended sensory overload could



Sensory deprivation is a technique by which sensory input (sound, light, smell, etc.) is minimized. This practice encourages an extremely deep level of relaxation. *(67Photo / Alamy)*

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Adrenaline—Also known as the "emergency hormone," adrenaline is produced by the body during times of stress. Excess adrenaline levels can increase blood pressure and heart rate, leading to heart disease.

Cortisol—Also known as the "stress hormone," cortisol is produced by the body during stress. Excess levels of cortisol can lead to a variety of health-related issues.

Endorphin—A natural substance released by the body to relieve fatigue and pain, and bring on a sense of well-being.

Homeostasis—The statch the body has reached its optimal level of internal balance and stability.

Parasympathetic response—A state of deep relaxation and the mechanism by which the body naturally regenerates itself and maintains chemical and metabolic balance.

also have detrimental effects on a person's mental and physical well-being. By reducing excess stimuli appropriately, he could actually lower **stress** levels. Drs. Peter Suedfeld and Roderick Borrie of the University of British Columbia began experimenting on the therapeutic benefits of this technique in the late 1970s. However, they renamed the technique Restricted Environmental Stimulation Therapy (REST) or, more appropriately, Floatation REST.

Since that time, several studies have been conducted on the benefits of Floatation REST, as well as other forms of REST. The consistently positive findings of these studies have led to the incorporation of Floatation REST into physical and mental health care programs, as well as fitness training and professional sports medicine. Currently, floatation centers can be found in major cities in Asia, Australia, Europe, and North America. Individuals can also purchase float tanks for their homes.

Benefits

Floatation REST has many physical and mental benefits because it provides an unparalleled level of relaxation. With the elimination of external stimuli, the central nervous system's workload is reduced by as much as 90%. This reduction focuses a person's energy inward, and promotes relaxation (the parasympathetic response). The parasympathetic response is the mechanism by which the body naturally regenerates itself and maintains chemical and metabolic balance. Old **wounds** and injuries are allowed to heal faster. Increased T-cell production strengthens the immune system. This deep level of relaxation also benefits the cardiovascular system. Known as the vasodilatory effect, the body's circulation is increased while the blood pressure and heart rate are reduced. Furthermore, the elimination of gravity on the body allows muscles and joints to release tension and heal more rapidly. For this reason, people suffering from musculoskeletal and rheumatic conditions greatly benefit from Floatation REST, as can women throughout the length of their **pregnancy**.

As the brain relaxes into a *theta* state, endorphins are released into the bloodstream, reducing **pain** and **fatigue**. The increased endorphin levels also promote a general sense of well-being and happiness and, therefore, increase vitality and further reduce levels of stress and tension. The blood levels of stress hormones such as adrenaline and cortisol are reduced by various body messages, receptor site activity, and organ processes. Combined, these positive effects help reduce the risks of high blood pressure and cardiovascular disease. Stress-related health problems, such as **migraine headache**, **hypertension**, and **insomnia**, are similarly reduced.

The brain, freed of external stimuli, begins working more efficiently. This provides the floater with an accelerated ability to learn, process information, and use his or her creative mind. This increased level of mental performance and concentration can be carried over into daily life. Equally important, Floatation REST can help with eliminating compulsive behaviors such as **alcoholism** and **smoking**. People with psychological and emotional problems, such as **anxiety** and **depression**, can also benefit from this therapy.

An added benefit to Floatation REST stems from the Epsom salts used to provide buoyancy. According to the Archangel Vitamin, Health, and **Nutrition** Center's *Health Newsletter*, Epsom salt "draws toxins from the body, sedates the nervous system, reduces swelling, relaxes muscles, and is a natural emollient (and exfoliative)." Also, because the solution does not leech salt from the skin, the floater's skin will not wrinkle during the treatment.

Description

Modern float tanks are large enough in size and shape to allow a full-sized adult to easily enter, exit, and lie comfortably. The bottom of the light-proof and sound-insulated chamber is filled with a shallow 10–12-in (24.4–31 cm) pool of 30% **magnesium** sulfate (Epsom salt) solution. The density of this solution provides the floater with complete buoyancy and

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

weightlessness. Indeed, the solution's density makes it impossible for the user to sink.

A float session begins when the tank's door is closed. Light is completely eliminated and sound is reduced to near zero through the combination of the tank's insulation and submersion of the floater's ears. Earplugs can further block outside noises. The air and water within the tank are maintained at a constant skin temperature. This neutral temperature prevents the physical and mental distractions caused by cold and heat. The silky nature of the solution further reduces the separation between the floater's skin and its surroundings, so that the body seems to gradually disappear. The combined elements of the tank, therefore, virtually eliminate all external stimulation for the floater.

Without environmental stimulation to process, the central nervous system's activity drops dramatically, sending the floater into a state of deep relaxation. The body undergoes positive physiological changes that work toward achieving homeostasis—the state of physical equilibrium. Muscular tension is released and proper blood flow is enhanced. Additionally, the body begins to balance any neurochemical imbalances caused by tension and stress. Their is increased production of endorphins and T-cells, which provide pain relief and increased immunity, respectively. In essence, relieved of outward stimuli, the floater's central nervous system can concentrate most of its energies inward for the restoration of physical and mental health.

During a float session, the brain also enters the *theta* state, usually only accessible in the brief moments before falling asleep. This level of consciousness provides access to the right brain, which is associated with concentration, creativity, and learning. The brain can more easily retain information while in the *theta* state.

A typical float session lasts an hour, although longer sessions are available. After the floater rinses off the salt solution in a shower, most float centers provide a rest area to recuperate and reflect on the float session. This downtime with other floaters and staff enhances the relaxation process. In total, the entire session lasts one-and-one-half to two hours. Repeated weekly sessions are suggested to achieve the full benefits of Floatation REST.

Preparations

Persons interested in Flotation REST should consult with the local floatation center before the session. Most centers provide items such as towels, shampoo, soap, and hairdryers for their clients. Bathing suits are not required, and most people float without wearing one. It is recommended that a session be scheduled in advance, to avoid a long wait.

Precautions

People suffering from high blood pressure, **heart disease**, or kidney conditions should consult a physician or family doctor before undergoing Floatation REST. Those who have claustrophobia, certain psychological disorders, or discomfort in the dark, may find the treatment unpleasant.

Side effects

Prolonged exposure to the Epsom salt solution may cause **diarrhea** and dry skin. Otherwise, Floatation REST has no known negative side effects.

Research and general acceptance

Unfortunately, sensory deprivation remains stigmatized by the general public. Many people continue to associate it negatively with the experiments conducted in the 1950s and 1960s. Science fiction movies such as *Altered States* have done little to improve the therapy's public image. For this reason, the term floatation REST is more accurately and commonly used. Floatation centers have begun appearing in cities throughout the world, and are growing in popularity. Studies confirming the positive physical and mental benefits of Floatation REST further enhance their popularity.

Floatation REST has been researched and studied for decades. The positive findings have impressed even those who were once strongly opposed to it. Journalist Michael Hutchinson tried to debunk the therapy but ended up writing what some call the "definitive" book on Floatation REST. Hutchinson says in *The Book of Floating* that "there's no doubt that floatation therapy works—as a therapeutic, educational, and entertainment tool, it has powerful effects on a number of levels, including the physical, emotional, intellectual, and spiritual."

Research scientists and physicians confirm the benefits of floatation REST. In their study for *Health Psychology*, Jacobs and colleagues found that the results indicated that, "Floatation REST can be an effective means of teaching normal subjects to lower systolic and diastolic pressure and heighten their perception of relaxation."

In their literature review, *Floatation REST in Applied Psychophysiology*, Drs. Thomas Fine and Roderick Borrie concluded that floatation REST can have positive

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

psychophysiological effects and clinical applications, as well as use in pain management, performance enhancement, and the treatment of chronic illness and depression. Further studies support these findings.

Training and certification

There is no training or certification required for those undergoing floatation REST. The floater does not even need to know how to swim.

All floatation centers must adhere to strict health and safety regulations. Ultraviolet lights, chemicals, and filtration help assure that water hygiene within the tanks is maintained at all times. Tanks can be easily opened from within, so a floater cannot be locked inside.

Resources

BOOKS

Barabasz, Arreed, and Marianne Barabasz, eds. *Clinical and Experimental Restricted Environmental Stimulation.* New York: Springer-Verlang, 1993.

Hutchison, Michael. *The Book of Floating: Exploring the Private Sea.* New York: William Morrow, 1985.

Lilly, John. *The Deep Self: Profound Relaxation and the Tank Isolation Technique.* New York: Simon & Schuster, 1977.

Suedfeld, Peter. *Restricted Environmental Stimulation.* Hoboken, NJ: Wiley, 1980.

PERIODICALS

Borrie, Roderick. "The Use of Restricted Environmental Stimulation Therapy in Treating Addictive Behaviors." *International Journal of Addiction.* (1990–1991): 995–1015.

Fine, Thomas, and John Turner. "Rest-assisted Relaxation and Chronic Pain." *Health and Clinical Psychology*(1985): 511–18.

Jacobs G., R. Heilbronner, and J. Stanley. "The Effects of Short Term Flotation REST on Relaxation: A Controlled Study." *Health Psychology*(March, 1984): 99–112.

Kjellgren, A., U. Sundequist, T. Norlander, and T. Archer. "Effects of Floatation-REST on Muscle Tension Pain." *Pain Research and Management* (Winter 2001): 181–9.

Turner, John, and Thomas Fine. "Restricting Environmental Stimulation Influences Levels and Variability of Plasma Cortisol." *Journal of Applied Psychology* (October 1991): 2010–13.

Wallbaum, A.B., R. Rzewnicki, H. Steele, and P. Suedfeld. "Progressive Muscle Relaxation and Restricted Environmental Stimulation Therapy for Chronic Tension Headache: A Pilot Study." *International Journal of Psychosomatics* (1991): 33–9.

OTHER

Fine, Thomas, and Roderick Borrie. *Floatation REST in Applied Psychophysiology.* [cited June 14, 2004]. http://www.drborrie.com/rest2.html.

"Float Tank Australia." *Introduction to Floating.* [cited June 14, 2004]. http://www.floattank.com/what.html.

Floatation.com. [cited May 30, 2004]. http://www.floatation.com/index.html.

London Floatation Tank Centre. [cited June 14, 2004]. http://www.londonfloatcentre.com.

Think Tank International. *About Floatation.* [cited June 14, 2004]. http://www.thinktank.com.sg/float.htm.

Tudor, Silke. "Going into the Tank." [cited June]. http://www.sfweekly.com/issues/2000-03-01/nightcrawler.html.

Lee Ann Paradise

Sensory integration disorder

Definition

Sensory integration disorder or dysfunction (SID) is a neurological disorder that results from the brain's inability to integrate certain information received from the body's five basic sensory systems. These sensory systems are responsible for detecting sights, sounds, smell, tastes, temperatures, **pain**, and the position and movements of the body. The brain then forms a combined picture of this information in order for the body to make sense of its surroundings and react to them appropriately. The ongoing relationship between behavior and brain functioning is called sensory integration (SI), a theory that was first pioneered by A. Jean Ayres, Ph.D., OTR in the 1960s.

Description

Sensory experiences include touch, movement, body awareness, sight, sound, smell, taste and the pull of gravity. Distinguishing between these is the process of sensory integration (SI). While the process of SI occurs automatically and without effort for most, for some the process is inefficient. Extensive effort and attention are required in these individuals for SI to occur, without a guarantee of it being accomplished. When this happens, goals are not easily completed, resulting in sensory integration disorder (SID).

The normal process of SI begins before birth and continues throughout life, with the majority of SI development occurring before the early teenage years. The ability for SI to become more refined and

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Axon—A process of a neuron that conducts impulses away from the cell body. Axons are usually long and straight.

Cortical—Regarding the cortex, or the outer layer of the brain, as distinguished from the inner portion.

Neurotransmission—When a neurotransmitter, or chemical agent released by a particular brain cell, travels across the synapse to act on the target cell to either inhibit or excite it.

Proprioceptive—Pertaining to proprioception, or the awareness of posture, movement, and changes in equilibrium and the knowledge of position, weight, and resistance of objects as they relate to the body.

Tactile—The perception of touch.

Vestibular—Pertaining to the vestibule; regarding the vestibular nerve of the ear which is linked to the ability to hear sounds.

effective coincides with the **aging** process as it determines how well motor and speech skills, and emotional stability develops. The beginnings of the SI theory by Ayres instigated ongoing research that looks at the crucial foundation it provides for complex learning and behavior throughout life.

Causes and symptoms

The presence of a sensory integration disorder is typically detected in young children. While most children develop SI during the course of ordinary childhood activities, which helps establish such things as the ability for motor planning and adapting to incoming sensations, others SI ability does not develop as efficiently. When their process is disordered, a variety of problems in learning, development, or behavior become obvious.

Those who have sensory integration dysfunction may be unable to respond to certain sensory information by planning and organizing what needs to be done in an appropriate and automatic manner. This may cause a primitive survival technique called "fright, flight, and fight," or withdrawal response, which originates from the "primitive" brain. This response often appears extreme and inappropriate for the particular situation.

The neurological disorganization resulting in SID occurs in three different ways: the brain does not receive messages due to a disconnection in the neuron cells; sensory messages are received inconsistently; or sensory messages are received consistently, but do not connect properly with other sensory messages. When the brain poorly processes sensory messages, inefficient motor, language, or emotional output is the result.

According to Sensory Integration International (SII), a non-profit corporation concerned with the impact of sensory integrative problems on people's lives, the following are some signs of sensory integration disorder (SID):

- oversensitivity to touch, movement, sights, or sounds
- underreactivity to touch, movement, sights, or sounds
- tendency to be easily distracted
- social and/or emotional problems
- activity level that is unusually high or unusually low
- physical clumsiness or apparent carelessness
- impulsive, lacking in self-control
- difficulty in making transitions from one situation to another
- inability to unwind or calm self
- poor self concept
- delays in speech, language, or motor skills
- delays in academic achievement

While research indicates that sensory integrative problems are found in up to 70% of children who are considered learning disabled by schools, the problems of sensory integration are not confined to children with learning disabilities. SID transfers through all age groups, as well as intellectual levels and socioeconomic groups. Factors that contribute to SID include: premature birth; **autism** and other developmental disorders; learning disabilities; delinquency and **substance abuse** due to learning disabilities; stress-related disorders; and brain injury. Two of the biggest contributing conditions are autism and attention-deficit hyperactivity disorder (ADHD).

Diagnosis

In order to determine the presence of SID, an evaluation may be conducted by a qualified occupational or physical therapist. An evaluation normally consists of both standardized testing and structured observations of responses to sensory stimulation, posture, balance, coordination, and eye movements. These test results and assessment data, along with information from other professionals and parents, are carefully analyzed by the therapist who then makes recommendations about appropriate treatment.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Treatment

Sensory integration disorder (SID) is treatable with occupational therapy, but some alternative methods are emerging to complement the conventional methods used for SID.

Therapeutic body brushing is often used on children (not infants) who overreact to tactile stimulation. A specific non-scratching surgical brush is used to make firm, brisk movements over most of the body, especially the arms, legs, hands, back and soles of the feet. A technique of deep joint compression follows the brushing. Usually begun by an occupational therapist, the technique is taught to parents who need to complete the process for three to five minutes, six to eight times a day. The time needed for brushing is reduced as the child begins to respond more normally to touch. In order for this therapy to be effective, the correct brush and technique must be used.

A report in 1998 indicates the use of cerebral electrical stimulation (CES) as being helpful to children with conditions such as moderate to severe autistic spectrum disorders, learning disabilities, and sensory integration dysfunction. CES is a modification of Transcutaneous Electrical Nerve Stimulation (TENS) technology that has been used to treat adults with various pain problems, including arthritis and carpal tunnel syndrome. TENS therapy uses a low voltage signal applied to the body through the skin with the goal of replacing painful impressions with a massage-like sensation. A much lower signal is used for CES than that used for traditional TENS, and the electrodes are placed on the scalp or ears. Occupational therapists who have studied the use of CES suggest that CES for children with SID can result in improved brain activity. The device is worn by children at home for 10 minutes at a time, twice per day.

Music therapy helps promote active listening. Hypnosis and **biofeedback** are sometimes used, along with **psychotherapy**, to help those with SID, particularly older patients.

Allopathic treatment

Occupational therapists play a key role in the conventional treatment of SID. By providing sensory integration therapy, occupational therapists are able to supply the vital sensory input and experiences that children with SID need to grow and learn. Also referred to as a "sensory diet," this type of therapy involves a planned and scheduled activity program implemented by an occupational therapist, with each "diet" being designed and developed to meet the needs of the child's nervous system. A sensory diet stimulates the "near" senses (tactile, vestibular, and proprioceptive) with a combination of alerting, organizing, and calming techniques.

Motor skills training methods that normally consist of adaptive physical education, movement education, and gymnastics are often used by occupational and physical therapists. While these are important skills to work on, the sensory integrative approach is vital to treating SID.

The sensory integrative approach is guided by one important aspect—the child's motivation in selection of the activities. By allowing them to be actively involved, and explore activities that provide sensory experiences most beneficial to them, children become more mature and efficient at organizing sensory information.

Expected results

By combining alternative and conventional treatments and providing these therapies at an early age, sensory integration disorder may be managed successfully. The ultimate goal of both types of treatment is for the individual to be better able to interact with his or her environment in a more successful and adaptive way.

Resources

PERIODICALS

"Body Brushing Therapy for Tactile Defensiveness." *Latitudes* (April 30, 1997).

"Brain Stimulation for Autism?" *Latitudes* (October 31, 1998).

"Sensory Integration Therapy." *Latitudes* (December 31, 1994).

Morgan, Nancy. "Strategies for Colic." *Birth Gazette* (September 30, 1996).

ORGANIZATIONS

Sensory Integration International/The Ayres Clinic, 1514 Cabrillo Avenue, Torrance, CA 90501-2817. http://www.sensoryint.com.

OTHER

"Sensory Integration Dysfunction." http://home.ptd.net/blnelson/SIDEWEBPAGE2.htm.

Sensory Integration Network. http://www.sinetwork.org.

Southpaw Enterprises, Inc. http://www.southpawenterprises.com.

Beth Kapes

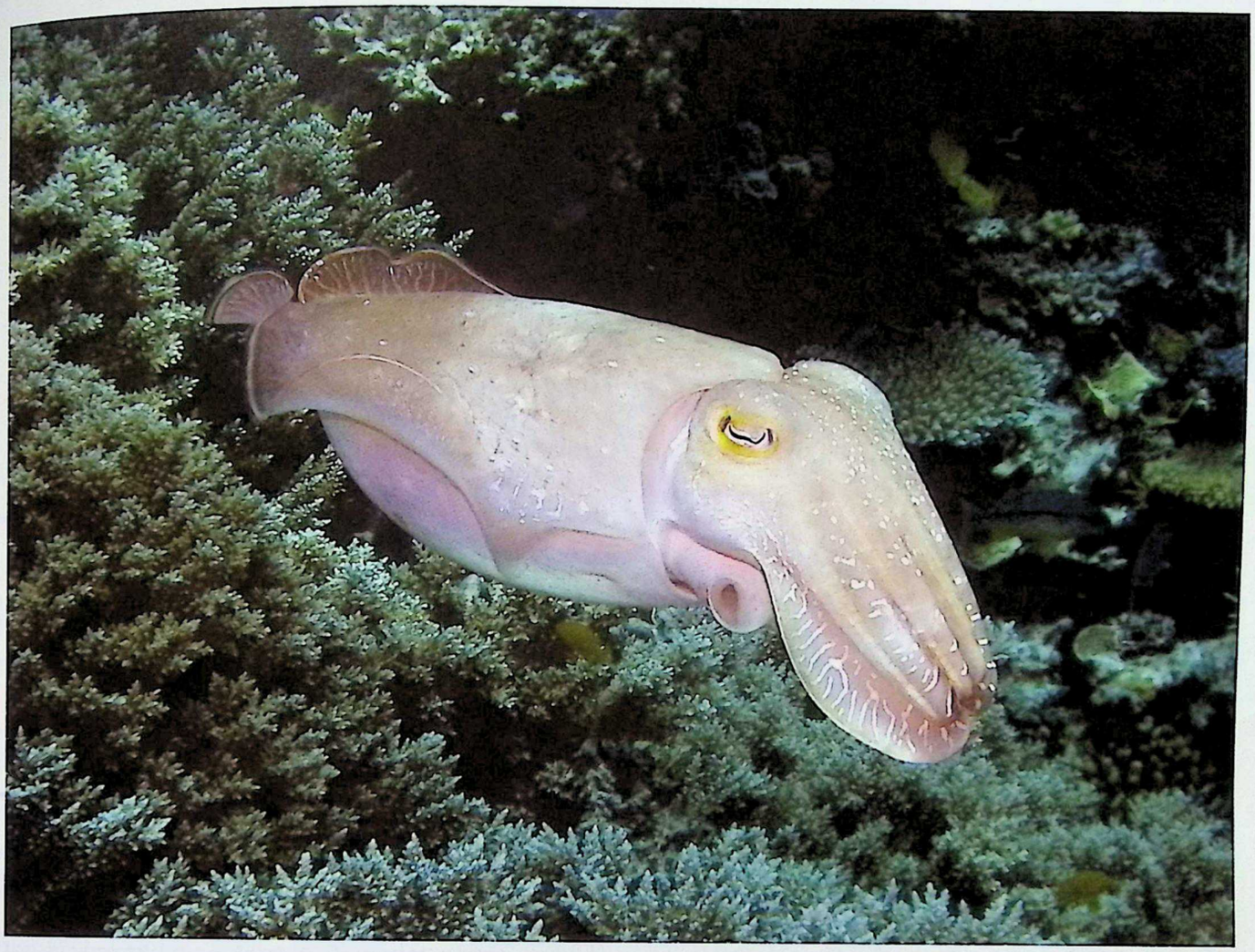
Sepia

Description

Sepia (*Sepia officinalis*) is the homeopathic name for "cuttlefish" or squid remedy. The remedy is made from the contents of the "ink bag" of the cuttlefish.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri



Sepia (Sepia officinalis), or cuttlefish. *(David Wall / Alamy)*

General use

Sepia's primary role in the world of alternative medicine is as one of the homeopathic remedies. In fact, it is classed as one of the 20 polychrests, which are those having the widest range of application, and which are also recommended for inclusion in the set of basic remedies that should be kept on hand in every household.

Homeopathy is a method of treatment devised by Samuel Hahnemann that works on the principle of treating "like with like," *(similia similibus curentor)*. Hahnemann devised a system of more than 100 remedies, formulated to be administered in minute doses, effective, yet safe and without side effects. He discovered the principle of minute doses by gradually reducing medicines until he arrived at an effective dose with no side effects.

Hahnemann also discovered the method of "potentizing" his remedies by sucussing (similar to shaking) them vigorously. Until now, no one has been able to discover exactly why this works. Even in his lifetime, Hahnemann's new methods were proven to be effective and safe.

According to homeopathy, the chief centers of action of the sepia remedy are those of the mind, mental processes and reproductive organs, upon which it is considered to act deeply over extended periods of time and to which it is more appropriate as a long-term remedy rather than a "quick fix."

Sepia is considered one of the chief remedies for the treatment of female ailments. It is particularly indicated for the following type: Irritable, tall thin girls who have pale sallow skin. These girls may often be ill, in fact never really well, and tired most of the time. They may often be at odds with others because of their attitudes. They feel better after exercise and improve with company, and when sociably occupied forget their ailments. These girls often suffer from heavy prolonged periods with intense cramping

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Amenorrhea—Absence of periods.

Candidiasis—Overgrowth of candida yeast in the body which may cause a variety of symptoms.

Fibroids—Fibrous non-cancerous growths on the uterus or surrounding tissue.

Ink bag—The part of a cuttlefish that contains their dye, also known as sepia.

Menorrhagia—Heavy and painful periods.

Officinalis—Denoting that the substance is available without prescription.

Potentize—To trigger effectiveness of a substance.

and general discomfort. Backache and constipation may also be experienced.

The ink of the cuttlefish was previously known as Indian ink, and was widely used by artists in the past because of its dark reddish brown pigment.

Uses for sepia

- women's problems related to menstruation
- constipation, particularly as a result of pregnancy or menstruation
- dandruff, particularly when associated with "pigmented patches"
- delayed menstruation, particularly if yeast infections are a problem
- problems associated with menopause, especially menstrual flooding and feeling that the womb will "drop out"
- amenorrhea when accompanied by depression and general aches and pains
- menorrhagia when accompanied by dragging pain in the lower abdomen, backache, depression, and irritability
- miscarriage when accompanied by dragging pains and irritability
- non-malignant swellings and tumors of the uterus (such as fibroids), again, when accompanied by the dragging pains and emotional make-up outlined above
- bedwetting in children when it occurs soon after falling asleep, and involuntary passing of urine on sneezing or coughing
- irritability, especially when connected with menstruation
- morning sickness, especially where cravings are worse in the morning and there is a craving for vinegar or pickles
- in cases of thrush or candidiasis
- young mothers who are having difficulty developing maternal feelings
- babies who dislike being held
- depression that is accompanied by irritability and an exaggerated sense of responsibility
- infertility, particularly when associated with loss of libido, exhaustion, and apathy

Preparations

Homeopathic remedies come in several strengths, or potencies. Common examples include 6x, 12c, and 30c. For minor ailments, the 6x potency may be taken twice daily for seven to ten days. For acute conditions, either the 6x remedy may be taken every two to four hours for three to five days, or the 30 remedy may be taken once every four hours three times only.

For extremely serious conditions, such as severe **pain** or accidents, **burns** or hemorrhage, the patient can take either the 6x remedy once every fifteen minutes, for six to eight doses or until the condition improves, or the 30 potency once every 15 to 30 minutes for four to six doses or until the condition improves.

Precautions

Homeopathic remedies work best if the correct remedy is picked. The best person to do this is an experienced homeopathic physician. Some naturopathic physicians are among the finest homeopathic practitioners.

Homeopathic remedies should be dissolved under the tongue. Handling of the remedies should be kept to a minimum as they react with handling and may be spoiled. They should also be kept away from heat and light, and should not be swallowed with a drink. After taking a homeopathic dose, patients should not eat, drink, smoke, or clean their teeth for about fifteen minutes if possible.

Side effects

Homeopathic remedies are not known to produce side effects, unless taken in massive doses, as they have no effect except when matched with particular symptoms. Individual aggravations may occur.

Interactions

Homeopathic remedies can be taken in conjunction with allopathic medicine. Sepia should not be taken at the same time as bryonia or **lachesis**, as they may react adversely to each other. Coffee, peppermints, and some essential oils may counteract the effects of homeopathic remedies. Dental treatment may also affect the action of remedies.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Resources

BOOKS

Smith, Trevor. *Homeopathic Medicine, A Doctor's Guide to Remedies for Common Ailments.* UK: Thorsons Publishers, 1982.

Treacher, Sylvia. *Practical Homeopathy, A Beginner's Guide to Natural Remedies.* Bath: Parragon Books, 2000.

OTHER

American Association of Naturopathic Physicians. http://www.naturopathic.org.

Holistic-online. http://www.holisticonline.com.

Patricia Skinner

Septicemia *see* **Blood poisoning**

Sesame oil

Description

Sesame oil is derived from a plant species called *Sesamum indicum*, which is a herbaceous annual belonging to the Pedaliaceae family that reaches about 6 ft (1.8 m) in height. Sesame has been used for millennia in Chinese and Indian systems of medicine. Though often recommended as a laxative, the herb was used as early as the 4th century AD as a Chinese folk remedy for toothaches and **gum disease**. In modern times, sesame has been embraced by Western herbalists for a variety of therapeutic purposes. The oil is also used in cooking and as an ingredient in margarine and salad dressings as well as in certain cosmetics and skin softening products. Native to Asia and Africa, sesame is primarily cultivated in India, China, Africa, and Latin America. Only the seeds and oil of the sesame plant are used for medicinal purposes.

Sesame oil, which is also referred to as benne, gingili, or teel oil, is made from the black seeds of *Sesamum indicum*. The large, round seeds are extracted by shaking the dried plant upside down after making an incision in the seed pods. The oil and seeds are believed by herbalists to have several important properties, including anticancer, antibacterial, and anti-inflammatory effects. Some of these claims have been supported by cell culture and human studies. Sesame may also have some power as an analgesic. In *The Green Pharmacy*, prominent herbalist James Duke states that sesame contains at least seven pain-relieving compounds and is a rich source of antioxidants and other therapeutic agents. Some authorities believe that sesame also has weak estrogen-like effects.

Black sesame. *(© tbkmedia.de / Alamy)*

Sesame oil is high in polyunsaturated fat. When used in moderation, this type of fat can benefit the heart by helping the body to eliminate newly made **cholesterol**, according to the American Heart Association. In 2003, the American Heart Association issued a report that cooking with sesame oil lowers blood pressure and lessens the dose of blood pressure medication needed.

General use

Nutrition and digestion

While not approved by the Food and Drug Administration (FDA), sesame oil is reputed to have a number of therapeutic uses. Its centuries-old reputation as a laxative persists into the 2000s. It is also used to treat blurred vision, **dizziness**, headaches, and to generally fortify the constitution during recuperation from severe or prolonged illness. When used in place of saturated fats, sesame oil may help to lower cholesterol levels and prevent **atherosclerosis**. The oil is taken internally for all the purposes mentioned above.

Menopausal symptoms

Due to its estrogen-like effects, sesame oil is sometimes recommended to alleviate the vaginal dryness associated with change of life. During **menopause**, women often experience this problem due to a decline in levels of female hormone. The vaginal lining becomes drier, thinner, and less elastic, which may lead to **pain** or irritation during intercourse. Some women insert cotton pads treated with sesame oil to increase lubrication and relieve symptoms associated with vaginal dryness.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Cancer

Research suggests that sesame oil may have potential as a **cancer** fighter. One cell culture study, published in the journal *Prostaglandins, Leukotrienes, and Essential Fatty Acids* in 1992, found that sesame oil blocked the growth of malignant melanoma in human cells. The researchers speculated that the **linoleic acid** (an essential fatty acid) in sesame oil may be responsible for its anticancer properties. Another test tube study, published in *Anticancer Research* in 1991, investigated the effects of sesame oil on human colon cancer cells. The results suggested that the oil may inhibit the development of the disease.

Traditional Asian medicine

Sesame oil plays a prominent role in Indian **Ayurvedic medicine**. It is sometimes rubbed into the skin during abhyanga, a form of Indian massage that focuses on over 100 points on the body (called marma points). Abhyanga is believed to improve energy flow and help free the body of impurities. Some practitioners of Ayurvedic medicine recommend sesame oil as an antibacterial mouthwash. In one small study involving 25 subjects in general good health, sesame oil was shown to reduce the growth of oral bacteria. These results suggest that the oil may help to prevent tooth and gum disease. According to tradition, sesame oil may also be applied externally to the abdomen to relieve cramps and stomach pain associated with **premenstrual syndrome** (PMS).

Sesame oil also has a reputation as a sedative in Indian and **Tibetan medicine**. It can be used to relieve **anxiety** and **insomnia** by applying a few drops directly onto the interior of the nostrils. Its calming effects are supposedly carried to the brain by way of blood vessels in the nose.

Preparations

The optimum daily dosage of sesame oil has not as of 2008 been established. People generally take 1 tsp of the oil at bedtime to relieve **constipation**.

Vaginal dryness associated with menopause may be relieved by following this procedure: Soak a quilted cotton cosmetic pad in sesame oil and then wring out the excess oil. A freshly treated cotton square may be inserted into the vagina overnight and removed each morning for seven days. After the first week, this treatment is typically used once a week (or as often as needed) as a form of maintenance therapy.

To relieve anxiety or insomnia, place one drop of pure raw sesame oil into each nostril.

KEY TERMS

Analgesic—Any substance that functions as a pain reliever.

Antioxidant—An agent that helps to protect cells from damage caused by free radicals, the destructive fragments of oxygen produced as a byproduct during normal metabolic processes.

Linoleic acid—An essential fatty acid that is found in sesame oil.

Melanoma—A common form of skin cancer originating in the cells that provide the skin with coloring.

Because sesame oil has been recommended for so many different purposes and can be used internally and externally, consumers are advised to consult a doctor experienced in the use of alternative remedies or Chinese/Ayurvedic medicine to determine the proper dosage.

Precautions

Sesame oil is not known to be harmful when taken in recommended dosages, though it is important to remember that the long-term effects of taking sesame-derived remedies (in any amount) have not been investigated. Due to lack of sufficient medical study, sesame oil should be used with caution in children, women who are pregnant or breast-feeding, and people with liver or kidney disease.

Because of its laxative effects, sesame oil should not be used by people who have **diarrhea**.

Sesame oil is best kept refrigerated to protect it from oxidation. It should also be protected from light and heat. While the oil may be added to cooked food, it should not be employed during the cooking process because high temperatures can compromise its therapeutic effects. In other words, it should not be used for frying, boiling, or baking. Sesame oil may be used in a low-temperature sauté without losing much of its medicinal value, according to some authorities.

No more than 10% of a person's total caloric intake should be derived from polyunsaturated fats such as those found in sesame oil, according to the American Heart Association.

While some body builders inject themselves with sesame oil to enhance muscles, this practice is not recommended and may be potentially dangerous. According to a report published in the *Journal of the American Academy of Dermatology* in 2000, injecting sesame or other plant-derived oils may lead to the

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

development of cysts. Scarring, skin thickening, and scleroderma or other connective tissue diseases may also occur as a result of such injections.

Side effects

When taken in recommended dosages, sesame oil is not associated with any bothersome or significant side effects.

Interactions

Sesame oil is not known to interact adversely with any drug or dietary supplement. Sesame seeds have been combined with **biota** seeds, **dong quai**, and white mulberry leaf without apparent harm.

Resources

OTHER

MedlinePlus. http://www.nlm.nih.gov/medlineplus/. (February 29, 2008).

Sahelian, Ray. "Sesame Oil." http://www.raysahelian.com/sesame.html. (February 29, 2008).

ORGANIZATIONS

American Botanical Council, PO Box 144345, Austin, TX, 78714-4345, (800) 373-7105, http://abc.herbalgram.org/site/PageServer.

Greg Annussek
Rhonda Cloos, RN

Sexual dysfunction

Definition

Sexual dysfunction is broadly defined as the inability to fully enjoy sexual intercourse. Specifically, sexual dysfunction is a group of disorders that interfere with a full sexual response cycle. These disorders make it difficult for a person to enjoy or to have sexual intercourse. While sexual dysfunction rarely threatens physical health, it can take a heavy psychological toll, bringing on **depression**, **anxiety**, and debilitating feelings of inadequacy.

Description

Sexual dysfunction takes different forms in men and women. A dysfunction can be lifelong and always present, or it can be temporary. It can be situational or generalized, occurring despite the situation. In either gender, symptoms of a sexual problem include the lack or loss of sexual desire, anxiety during intercourse, **pain** during intercourse, or the inability to achieve orgasm. In addition, a man may have a sexual problem if he:

- Ejaculates before he or his partner desires.
- Does not ejaculate, or experiences delayed ejaculation.
- Is unable to have an erection sufficient for pleasurable intercourse.

Also, a woman may have a sexual problem if she:

- Feels vaginal or other muscles contract involuntarily before or during sex.
- Has inadequate lubrication.

The most common sexual dysfunctions in men include:

- Erectile dysfunction: an impairment of a man's ability to have or maintain an erection that is firm enough for coitus or intercourse.
- Premature ejaculation, or rapid ejaculation, with minimal sexual stimulation before, on, or shortly after penetration and before the person wishes it.
- Ejaculatory incompetence: the inability to ejaculate within the vagina despite a firm erection and relatively high levels of sexual arousal.
- Retarded ejaculation: a condition in which the bladder neck does not close off properly during orgasm so that the semen spurts backward into the bladder.

Female sexual dysfunctions include:

- Sexual arousal disorder: the general arousal aspect of sexual response is inhibited. A woman with this disorder does not lubricate, her vagina does not swell, and the muscle that surrounds the outer third of the vagina does not tighten—a series of changes that normally prepare the body for orgasm ("the orgasmic platform"). Also, in this disorder, the woman typically does not feel erotic sensations.
- Orgasmic disorder: the orgasmic component of the female sexual response is impaired. The woman may be sexually aroused but never reach orgasm.
- Vaginismus: a condition in which the muscles around the outer third of the vagina have involuntary spasms in response to attempts at vaginal penetration.
- Painful intercourse.

Causes and symptoms

Many factors, of both physical and psychological origin, can affect sexual response and performance. Injuries, such ailments as **infections**, and drugs of abuse are among the physical influences. Certain prescription medications, such as drugs to regulate blood **cholesterol** levels, may also affect sexual functioning.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Acupuncture—A type of Chinese medicine in which certain points on the body are stimulated to energize the flow of healthful qi (pronounced chee).

Ejaculatory incompetence—Inability to ejaculate inside the vagina.

Erectile dysfunction—Difficulty achieving or maintaining an erect penis.

Orgasmic disorder—Impairment of the ability to reach sexual climax.

Premature ejaculation—Rapid ejaculation before the person wishes it, usually in less than one to two minutes after beginning intercourse.

Retrograde ejaculation—A condition in which the semen spurts backward into the bladder.

Sexual arousal disorder—The inhibition of the general arousal aspect of sexual response.

Vaginismus—A condition in which muscles around the outer third of the vagina have involuntary spasms in response to attempts at vaginal penetration, thus making penetration impossible or difficult.

In addition, there is increasing evidence that chemicals and other environmental pollutants depress sexual function. As for psychological factors, sexual dysfunction may have roots in traumatic events such as rape or incest, guilt feelings, a poor self-image, depression, chronic **fatigue**, certain religious beliefs, or marital problems. Dysfunction is often associated with anxiety. If a man operates under the misconception that all sexual activity must lead to intercourse and to orgasm by his partner, he may consider the act a failure if his expectations are not met.

In Chinese medicine, sexual dysfunction is considered an imbalance of yin and yang. Yin and yang are the two dependent and constantly interacting forces of energy in the world, according to ancient Chinese thought. Yin energy is receptive, dark, feminine, and cool. It is associated with the heavy, the cold, and the moist. Yang energy is masculine, active, bright, and warm. It is associated with the dry, the light, and the hot. People with sexual dysfunction who have yin deficiency are too dry and tired, causing premature ejaculation or dry and spastic conditions. Symptoms of a yang deficiency may include erectile dysfunction as well as lack of sexual appetite or excitement. There are other imbalances that can cause sexual dysfunction.

Other types of alternative medicine, such as herbalism, regard sexual dysfunction as stemming from the same causes as those recognized by Western medicine. In such alternative approaches as **homeopathy**, sexual dysfunction is seen as an energy deficiency in the sexual organs or the glands that regulate these organs.

Diagnosis

In deciding whether sexual dysfunction is present, it is necessary to remember that each person has a different level of sexual interest. While some people may be interested in sex at almost any time, others have low or seemingly nonexistent levels of sexual interest. A sexual condition is classified as sexual dysfunction only when it is a source of personal or relationship distress instead of voluntary choice.

The first step in diagnosing a sexual dysfunction is usually discussing the problem with a doctor or an alternative practitioner, who will need to ask further questions so he or she can differentiate among the types of sexual dysfunction. The physician may also perform a physical exam of the genitals, and may order further medical tests, including measurement of hormone levels in the blood.

An expert in Chinese medicine will take the pulses at the wrist to assess the patient's overall health. According to Chinese thought, there are 12 pulses at the wrist, six on each wrist. The practitioner will ask questions that relate to yin and yang energy, such as whether the patient's hands and feet are cold or warm most of the time. An alternative practitioner is also likely to query the patient about his diet and any issues in his life that may be contributing to **stress**.

In allopathic medicine, men may be referred to a urologist, a specialist in diseases of the urinary and genital organs, and women may be referred to a gynecologist.

Treatment

A variety of alternative therapies can be useful in the treatment of sexual dysfunction. Counseling or **psychotherapy** is highly recommended to address any emotional or mental components of the disorder. Nutritional supplementation, as well as western, Chinese, or ayurvedic **botanical medicine**, can help resolve biochemical causes of sexual dysfunction.

Beneficial supplements and herbs include gingko biloba, which improves circulation to the genitals and has been shown to be effective in a number of studies.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

If the cause is a psychological, emotional, or energy disorder, such adrenal tonics as **licorice**, **epimedium**, eucommia, and **cuscuta** can restore the patient's mood and increase sexual interest. These herbs increase the ability to adapt to physical and mental stress because they increase the power of the adrenal system, which secretes the brain chemical epinephrine. If the patient's reproductive organs are not producing enough of the hormones that regulate sex drive and function, vitex is also a good solution. When a patient lacks sexual drive, such tonics as deer antler can increase interest in sex.

One drug derived from herbal sources that is used in mainstream medicine to treat **impotence** in men is yohimbine, an alkaloid derived from the bark of the **yohimbe** or rauwolfia tree. Yohimbine is used to treat inadequate circulation in the arms and legs and to dilate the pupil of the eye as well as to treat impotence. It is available as a prescription medication under such brand names as Yocon and Yohimex. Yohimbine does not work for all men affected by impotence, but appears to have fewer side effects than sildenafil (Viagra).

Homeopathic treatment can be helpful by focusing on the energetic aspects of the disorder. A Chinese medicine practitioner might address sexual dysfunction by using **acupuncture**, in which hair-thin needles are used to stimulate the body's energy (or qi). According to ancient Chinese theory, the body has 12 meridians that correspond to various organs, their functions, and the patient's emotions. Acupuncture needles might be applied at points on these meridians that regulate the kidney, which forms the foundation for the reproductive system in **traditional Chinese medicine**, or to other meridians that have roles in sexual function.

Yoga and **meditation** provide needed mental and physical **relaxation** for conditions such as vaginismus. A yoga teacher may advise forward bends to calm the patient and yoga twists to help the body produce hormones that increase sexual drive and a feeling of well-being.

Relaxation therapy eases and relieves anxiety about dysfunction. Massage is extremely effective at reducing stress, especially if performed by the partner.

A massage therapist or aromatherapist can also provide sandalwood or jasmine oils to boost sexual drive. An aromatherapist usually prescribes singular scents or a mixture created with the person's preferences and his or her symptoms in mind.

Allopathic treatment

Allopathic treatments break down into two main categories: behavioral psychotherapy and physical treatment. Sex therapy, ideally provided by a member of the American Association of Sexual Educators, Counselors, and Therapists (AASECT), emphasizes correction of sexual misinformation, the importance of improved partner communication and honesty, anxiety reduction, sensual experience and pleasure, and interpersonal tolerance and acceptance. Sex therapists believe that many sexual disorders are rooted in learned patterns and values. These are termed psychogenic. An underlying assumption of sex therapy is that relatively short-term outpatient therapy can alleviate learned patterns, restrict symptoms, and allow a greater satisfaction with sexual experiences.

In some cases, a specific technique may be used during intercourse to correct a dysfunction. One of the most common is the "squeeze technique" to prevent premature ejaculation. When a man feels that an orgasm is imminent, he withdraws from his partner. Then, the man or his partner gently squeezes the head of the penis to halt the orgasm. After 20-30 seconds, the couple may resume intercourse. The couple may do this several times before the man proceeds to ejaculation.

In cases in which significant sexual dysfunction is linked to a broader emotional problem such as depression or **substance abuse**, intensive psychotherapy and/or medications may be appropriate. People who are taking such medications as fluoxetine (Prozac), paroxetine (Paxil), or reboxetine (Edronax) for depression, however, should be advised that sexual dysfunction in adults of either sex is a fairly common side effect of these medications.

In many cases, doctors prescribe medications to treat an underlying physical cause of sexual dysfunction. Possible medical treatments include:

- Clomipramine and fluoxetine for premature ejaculation.
- Papaverine and prostaglandin for erectile difficulties.
- Hormone replacement therapy or androgen therapy for female dysfunctions.
- Sildenafil (Viagra), a drug approved in 1998 as a treatment for impotence. As of 2002, however, sildenafil has been shown to have potentially serious side effects, including headaches, nausea, sudden changes in blood pressure, and eye disorders.

Expected results

There is no single cure for sexual dysfunction, but almost all of the individual conditions can be controlled. Most people who have a sexual dysfunction fare well once they get into a treatment program. Most

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

alternative therapies, however, take at least several weeks to take effect. If the patient doesn't see improvement in that time, he or she should consider trying another practitioner.

Prevention

It often helps to continue treatments, such as acupuncture and massage, after the initial problem is resolved. Doing so keeps sexual energy high and the genital organs and sex glands healthy. By continuing to use alternative therapies, the patient can help maintain sexual interest even when normal sexual doldrums occur. Continuing to take alternative medicines or treatment also ensures the problem won't return.

Resources

BOOKS

American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders,* 4th ed., text revision. Washington, D.C.: American Psychiatric Association, 2000.

Masters, William H., Virginia E. Johnson, and Robert C. Kolodny. *Human Sexuality*. New York: HarperCollins, 1992.

Molony, David. *The American Association of Oriental Medicine's Complete Guide to Herbal Medicine*. New York: Berkley Books, 1998.

PERIODICALS

Guay, A. T., R. F. Spark, J. Jacobson, et al. "Yohimbine Treatment of Organic Erectile Dysfunction in a Dose-Escalation Trial." *International Journal of Impotence Research* 14 (February 2002): 25-31.

Haberfellner, E. M. "Sexual Dysfunction Caused by Reboxetine." *Pharmacopsychiatry* 35 (March 2002): 77-78.

Hensley, P. L., and H. G. Nurnberg. "SSRI Sexual Dysfunction: A Female Perspective." *Journal of Sex and Marital Therapy* 28 (2002, Suppl. 1): 143-153.

Pomerantz, H. D., K. H. Smith, W. M. Hart, Jr., and R. A. Egan. "Sildenafil-Associated Nonarteritic Anterior Ischemic Optic Neuropathy." *Ophthalmology* 109 (March 2002): 584-587.

Traish, A. M., N. Kim, K. Min, et al. "Androgens in Female Genital Sexual Arousal Function: A Biochemical Perspective." *Journal of Sex and Marital Therapy* 28 (2002, Suppl. 1): 233-244.

Wagstaff, A. J., S. M. Cheer, A. J. Matheson, et al. "Spotlight on Paroxetine in Psychiatric Disorders in Adults." *CNS Drugs* 16 (2002): 425-434.

ORGANIZATIONS

American Academy of Clinical Sexologists. 1929 18th Street NW, Suite 1166, Washington, DC 20009. (202) 462-2122.

American Association for Marriage and Family Therapy. 1100 17th Street NW, 10th Floor, Washington, DC 20036-4601. (202) 452-0109.

American Association of Oriental Medicine. 909 22nd St. Sacramento, CA 95816. (916) 451-6950. www.aaom.org.

American Association of Sex Educators, Counselors & Therapists. P.O. Box 238, Mt. Vernon, IA 52314. www.aasect.org.

Yoga Research and Education Center. P.O. Box 1386, Lower Lake, CA 95457. (707) 928-9898. www.yrec.com.

Barbara Boughton
Rebecca J. Frey, PhD

Sexually transmitted diseases *see* **Chlamydia; Genital herpes; Genital warts; Gonorrhea; Syphilis**

Shamanism

Definition

A complex pattern of diverse rites and beliefs, shamanism is a tribal religion in societies without literary tradition. Healing is one function of the shaman and the most important along with prophecy. The shaman uses mystical powers to journey to other worlds or realities and communicate with spirits in order to bring about a balance between the physical and spiritual worlds.

Origins

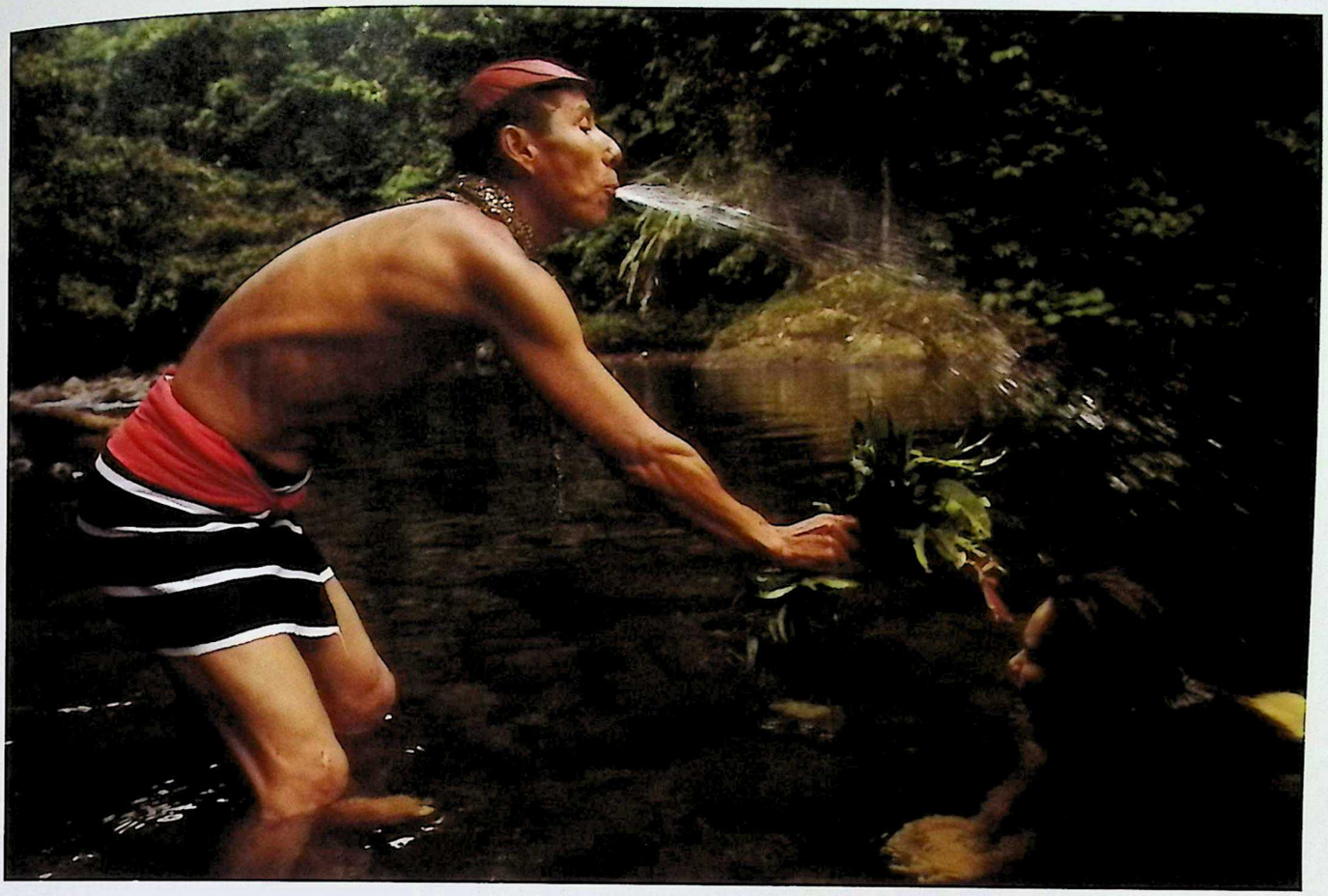
Shamanism is the oldest form of human healing. It is a type of religious medicine that originated over 25,000 years ago in the Paleolithic hunting cultures of Siberia and Central Asia. The English word shaman is derived from the Siberian Tungus word "saman," which is defined as a technique of ecstasy. The shaman is considered a great master of trance and ecstasy. He or she is the dominating figure in certain indigenous populations.

Most early cultures' healing practices stem from a shamanic tradition. For instance, when visiting the sick, Egyptian magicians often brought a papyrus roll filled with incantations and amulets in order to drive out demons.

The shaman is often the religious leader or priest of the tribe. He is believed to have magical powers that can heal the sick. The shaman is called upon to mediate between the people of the community and the spirit world to cure disease, exorcize evil spirits, and to promote success in hunting and food production and to keep the tribal community in balance. Traditional shamanic rituals included singing, dancing, chanting,

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri



Colorado or Tsçchila Indian Shaman performs a cleansing ceremony, spraying concoction of alcohol and medicinal herbs over his 'patient.' Santo Domingo de los Colorados, Coastal Ecuador, South America. *(© Danita Delimont / Alamy)*

drumming, storytelling, and healing. The shaman is a specialist in human souls. He is able to see them and know their form and destiny. The shaman controls the spirits. Rather than being possessed by them, he communicates with the dead, demons, and nature spirits.

The shaman's work is based on the belief that the soul can forsake the body even while a person is alive and can stray into other cosmic realms where it falls prey to demons and sorcerers. The shaman diagnoses the problem, then goes in search of the wandering soul and makes it return to the body.

Shamanism is still practiced all over the world, although each culture's shamanic tradition has evolved in different ways. **Native American medicine** men perform soul flights and vision quests to heal. North American Inuit shamans undertake undersea spirit journeys to ensure a plentiful supply of game. Tibetan shamans use a drum to help them in spirit flight and soul retrieval. Central and South American shamans often use hallucinogenic plants to invoke their shamanic journeys. Australian aborigine shamans believe that crystals can be inserted into the body for power. Some cultures have female as well as male shamans.

Benefits

Shamanism is based on the belief that the condition of the soul must be addressed in order for healing to occur. Relief of **pain**, **anxiety**, and **stress**, as well as spiritual and emotional healing, are common benefits of a shamanic healing.

Description

Shamans believe that there are realities that exist beyond the dimension that we experience on Earth. They believe that all creation is alive—rocks, plants, animals, trees, fish—and work regularly with these forces of nature.

The role of the shaman is to mediate between different realities to treat disease and create harmony between the physical and spiritual dimensions. Shamanism is a combination of "magic" and medicine. A shaman is a warrior who uses his power to combat

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Peyote—The dried top of the mescal cactus, used by shamans in some Southwestern cultures to induce a trance state. Peyote contains a chemical called mescaline that produces hallucinations.

Psychosis—A severe mental disorder characterized by delusions, hallucinations, and other evidence of loss of contact with reality. Some psychiatrists regard shamanic experiences as evidence of psychosis.

Schizophrenia—A serious mental disorder characterized by brain abnormalities and various symptoms of psychosis. Some observers think that shamans are suffering from undiagnosed schizophrenia.

Shaman—Among certain tribal peoples, a man or woman who is thought to be an intermediary between natural and supernatural forces, and to have unusual abilities to heal illness or foretell the future.

disease, demons, and practitioners of black magic. They also perform rights to assure success in hunting and fishing, to protect the tribe's lands and increase and develop the family. Although shamans have traditionally been male, there are many female shamans in contemporary Asia and Africa.

Shamans can see and exorcize spirits, perceive when a person's soul has fled from the body, and return souls to their rightful owners. They specialize in soul healing, healing physical sickness, and delivering a deceased person's soul to the underworld of death. They also communicate with ancestral spirits, gods, and demons through ceremony, sacred dance, vision quests, by visiting places of power, and through dreams and out-of-body experiences.

The basis of a shaman's work stems from his or her mastery of the ecstasy technique, in which he or she enters an altered state of consciousness known as the trance state. During this state, the shaman's soul leaves his or her body to travel to nonphysical realities, in order to communicate with spirits and gain information for healing.

The state of ecstasy is brought about in several ways, depending upon the shaman's culture. Native American shamans use drumming, dancing, and chanting to enter the trance state. Some Central and South American shamans use peyote or other hallucinogenic plants to enter a state of altered consciousness.

During their spiritual journey, shamans may travel to heavens and hells, higher levels of existence, parallel physical worlds, or other regions of the world. The shaman is protected during his travels by spirit helpers and such animal guides as bears, wolves, stags, hares, and birds.

According to Central and North American shamanism, disease is caused when the soul strays or is stolen from the body. To bring about health a shaman goes in search of the spirit, captures it, and persuades it to return. Illness may also be caused when the body becomes possessed by evil spirits, or by a magical object such as a pebble or insect that has been telepathically implanted in the body by sorcerers of black magic. The shaman removes the item by sucking it out of the patient's body.

Shamans often wear ritual costumes such as feathers, masks, or animal skins. They may also use ritual objects, charms, and herbs.

Training and certification

Becoming a shaman is not an ordinary task that occurs overnight. Shamans go through strenuous training before they begin to practice as a shaman. They are usually chosen or "called" by the spirits. This call to become a shaman may involve a series of tests to prove intent and worth.

A personal crisis, severe trauma, near-death experience, lightning strike, or life-threatening illness may serve as the calling to become a shaman. Initiation may also occur though dreams or visions as the spirits are made known to the chosen one. This connection between a call to become a shaman and physical or emotional trauma is one reason why some historians and psychiatrists regard shamanism as evidence of mental illness. They see resemblances between the dreams, visions, and other unusual experiences reported by shamans and the delusions and hallucinations associated with **schizophrenia** and other psychotic disorders.

In many cultures, the shamanic tradition is passed from father to son, from mother to daughter, or to those outside the shaman's family who have answered the call. The teaching involves training by master shamans in the ecstatic trance; a thorough understanding of traditional shamanic techniques; the names and functions of spirits; and the mythology and genealogy of the clan. While in the apprentice stage, the shaman-to-be learns about the soul: the forces that can threaten it and where it may flee or be captured by evil spirits.

A shaman's initiation typically involves a visionary death or dismemberment of the body during the trance journey. By knowing death and returning from it, the shaman attains the secret of life and the power to heal. The shaman-in-training must also undertake a

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

training in which he faces and resolves his fears. After the initiation, the shaman is trained by a more experienced shaman until he has reached a level of mastery.

In modern times, shamanic knowledge is being shared with the general population. One does not have to belong to a native tribe to become a shaman. Carlos Casteneda, one of the most well-known writers of shamanism, studied under a Native American Yaqui shaman. Dr. Michael Harner, an anthropologist, is one of the world's leading authorities on shamanism and has even started a non-profit educational organization, The Foundation for Shamanic Studies. Modern shamanism is often practiced in groups and lodges and through workshops and classes. Shamanic training may be obtained through similar schools or psychological or spiritual teachers.

Several schools of shamanism are located in the United States:

- Dance of the Deer Foundation, Center for Shamanic Studies, P.O. Box 699, Soquel, CA 95073. (831)475-9560. http://www.shamanism.com
- The Foundation for Shamanic Studies, P.O. Box 1939, Mill Valley, CA 94942. (415) 380-8282.

Resources

BOOKS

Goldberg, Dr. Bruce. *Soul Healing*. Minneapolis, MN: Llewellyn Publications, 1997.

Harner, Michael. *The Way of the Shaman*. San Francisco, CA: Harper, 1990.

Mindell, Arnold. *The Shaman's Body*. San Francisco, CA: Harper, 1993.

Moorey, Teresa. *Shamanism: A Beginner's Guide*. London, UK: Hodder and Stoughton, 1997.

PERIODICALS

Polimeni, J., and J. P. Reiss. "How Shamanism and Group Selection May Reveal the Origins of Schizophrenia." *Medical Hypotheses* 58 (March 2002): 244-248.

Jennifer Wurges
Rebecca J. Frey, PhD

Shangri-la diet

Definition

The Shangri-la diet is not a diet in the usual sense of a set of meal plans or detailed instructions about calorie intake and **nutrition**. The book that was published in 2006, *The Shangri-la Diet*, is perhaps better described as a discussion of a psychological theory about human appetite than a diet book. The core of the author's theory is that people gain weight because they have been conditioned to have a strong association between food and flavor, which keeps the appetite demanding more of a specific source of calories in order to continue tasting the flavor. If a person can break the association between flavor and food intake, they can lose weight because they won't feel hungry as often or as intensely. The book suggests several ways in which this association can be broken, thus leading to lifelong reduction in calorie intake with relatively little physical or emotional distress. As one newspaper reporter describes the diet, " . . . it seems that you may eat whatever you wish under the [author's] plan, but you just won't want to." The diet has generated considerable controversy since its publication, not only in regard to its theory of appetite and weight control, but also about the role of expert review and clinical trials in evaluating new **diets**.

The name of the Shangri-la diet comes from a novel titled *Lost Horizon*, written in 1933 by James Hilton about a mythical paradise called Shangri-la, hidden from the world somewhere in the Himalayas and guided by the wisdom of a Tibetan lama. The word Shangri-la entered English common speech as a synonym for a utopia or Garden of Eden when Frank Capra directed a movie based on Hilton's novel in 1937. Seth Roberts, the author of *The Shangri-la Diet*, maintains that he chose the name of his diet because of its association with an earthly paradise. He told an interviewer in 2005, " [I picked the name] because it puts people at peace with food—like being in Shangri-la, a peaceful place. It reduces or eliminates food compulsions, such as eating between meals and eating late at night. It is also a kind of ideal diet, just as Shangri-la was a kind of ideal place."

Origins

Seth Roberts, the originator of the Shangri-la diet, is (as of 2007) a middle-aged (b. 1953) professor of psychology at the University of California, Berkeley; he is not a medical doctor or nutritionist. He has said in the course of several television interviews, including a November 2005 segment with Diane Sawyer on the ABC News program *Good Morning America*, that the Shangri-la diet emerged over the course of some years of self-experimentation coupled with a chance discovery during a visit to France in 2000. With regard to self-experimentation as such, the paper available on the official website of the Shangri-la diet is essentially a discussion of self-experimentation as a potentially

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Anecdotal evidence—A category of medical or dietary evidence based on or consisting of individual reports, usually written by observers who are not doctors or scientists.

Association—In psychology, a connection between two ideas, actions, or psychological phenomena through learning or experience. The Shangri-la diet is based in part on the notion that humans eat more than they need to in the modern world because of a strong association between food flavors and calories.

Conditioning—In psychology, the process of acquiring, developing, or establishing new associations and responses in a person or animal. The author of the Shangri-la diet believes that modern food products condition people to make an association between the flavors in the foods and calorie intake.

Dietitian—A health care professional who specializes in individual or group nutritional planning, public education in nutrition, or research in food science. To be licensed as a registered dietitian (RD) in the United States, a person must complete a bachelor's degree in a nutrition-related field and pass a state licensing examination. Dietitians are also called nutritionists.

Glycemic index (GI)—A system devised at the University of Toronto in 1981 that ranks carbohydrates in individual foods on a gram-for-gram basis in regard to their effect on blood glucose levels in the first two hours after a meal. There are two commonly used GIs, one based on pure glucose as the reference standard and the other based on white bread.

Set point—In medicine, a term that refers to body temperature, body weight, or other measurements that a human or other organism tries to keep at a particular value. The Shangri-la diet is said to work by lowering the dieter's set point for body weight.

Shangri-la—A utopia; a mythical place in the Himalayas where life approaches perfection, depicted in a 1933 novel by James Hilton.

fruitful approach to generating topics for further research; it is not a report on the Shangri-la diet by itself.

According to this paper, which Roberts published in 2004, he experimented with his own body systems for over 10 years concerning other issues before focusing on weight control. He began with **acne** and then decided to study his long-standing problem with awakening too early in the morning and feeling tired most of the day. He states that he first noticed this problem in 1980. By experimenting, he noticed that he could improve the quality as well as the duration of his sleep by skipping breakfast, exposing himself to an hour of morning light, standing up for 8 hours a day, and "seeing faces on television in the morning." Roberts concluded from these apparently unrelated changes in food intake and other activities that human beings are still better suited to Stone Age life than to contemporary lifestyle patterns. Roberts believes that humans living in the Stone Age had most of their contact with other people in the morning rather than after dark, that they spent most of the day on their feet, and that the modern preference for watching late-night television creates a mismatch with inbred human sleep-wake patterns.

The hypothesis that there is a mismatch between human evolution and modern life then suggested itself to Roberts as a possible explanation for his difficulties in losing weight. He had already come to accept the so-called set point theory, first proposed in 1950, that weight in human adults is controlled by an internal set point that functions much like a thermostat in a heating system. According to the set point theory, whenever a person's amount of body fat drops below a specific set point, the person's body will eventually regain the fat through increasing appetite, lowering metabolism, or both. Roberts decided to test the set point theory by seeing whether changing his diet could change his body's set point. Over the years he had tried a series of diets—a sushi diet, a pasta diet, a diet that required the dieter to drink five quarts of water per day—but none had proved effective in bringing about permanent weight loss.

On a trip to France in 2000, however, Roberts had a chance discovery that he thinks enabled him to reset his body weight set point. He drank a number of French soft drinks with unfamiliar flavors and lost weight. He theorized that his body did not associate the strange flavors with calorie intake, and that the key to resetting the set point was to break the association that the mind makes between the taste of food and taking in calories. After some experimenting, he came up with the notion of ingesting a small amount of bland or flavorless calories in the form of either an unflavored solution of sugar and water (sweetness

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

has no taste as such) or flavorless liquid cooking oil (he tried canola oil and very light olive oil).

The connection that Roberts sees between human evolution and food flavors is as follows: he thinks that human metabolism essentially acquired its present pattern during the Stone Age, when the food supply was highly variable. When food was scarce, the metabolism of our Stone Age ancestors slowed down, lowering their set point to a lower weight and a more efficient metabolism with fewer hunger pangs. When food was once again available in large amounts, people actually got hungrier; they gorged on the food and fattened themselves in preparation for the next period of scarcity. This pattern, according to Roberts, indicates that the human body is programmed to crave more—not less—food when food is readily available so that it can store the extra calories in the form of fat to protect it during the next time of famine.

Roberts went further and hypothesized that this metabolic pattern is accompanied by an association that the brain makes between food flavor and calorie intake. When Stone Age people ate something they found tasty (during a period of abundance) and familiar (which meant that they had found by experience that the food nourished their bodies), their bodies demanded that they eat as much of the tasty food as possible in order to store the extra calories as fat. The problem with modern life in the developed countries is that the constant availability of affordable good-tasting food leads to rampant overeating that is no longer necessary as a protection against hard times, and that food advertising as well as food availability conditions people to associate food flavor with calorie consumption.

Description

The Shangri-la diet in its present form requires the dieter to take either a small quantity of sugar water or a bland oil (extra-light olive oil, canola oil, or highly refined walnut oil) twice or three times a day, at least an hour before or an hour after consuming anything with flavor (including toothpaste or mouthwash). Roberts recommends 1 to 2 tablespoons of oil per day, which comes to 120 to 240 calories. The sugar mixture that Roberts used while losing weight was about 6 tablespoons of fructose (about 275 calories) diluted in a quart of water. According to Roberts, the oil or sugar water gives the dieter some calories in a nutrient-dense substance without flavor, thus breaking the learned association between flavor and calories. In effect, breaking this learned association tricks the body into lowering its set point, suppressing appetite, and leading to weight loss without hunger cravings. Roberts suggests taking the doses of oil or sugar water first thing in the morning and just before bedtime, but says that dieters should feel free to experiment and take their doses at other times that may work better for them.

The dieter need not make any other changes in the types of food they prefer. Roberts does, however, suggest ways in which people using the Shangri-la diet can lower their set point even further:

- Avoid food commercials, cooking shows on television, and other visual stimuli related to food. Seeing images of food is thought to increase the appetite.
- Choose foods with a low glycemic index (GI). The glycemic index is a measurement system that evaluates the carbohydrates in specific foods for their effect on the body's blood sugar level within two hours after a meal. Foods with a low GI index are thought to satisfy hunger longer because they do not increase blood sugar levels as rapidly as foods with a high GI index.
- Eat very bland foods other than the doses of oil (sushi, boiled rice, egg whites, etc.) to help break the association between flavor and calorie intake.
- Practice "crazy spicing," which is Roberts's term for adding 10 to 20 spices chosen at random to one's food so that the original flavor is unrecognizable. As Roberts says, "No flavor recognition = no set point increase = lower set point = weight loss."

As of 2007, Roberts maintains that he has kept his weight at about 150 pounds by eating one 900-calorie meal per day, 150 calories of fruit sugar dissolved in water, and 2 pieces of fresh fruit (about 75 calories each).

Function

The function of the Shangri-la diet is to induce and maintain weight loss through an approach intended to reset the dieter's set point and improve control of appetite, rather than by eliminating specific food categories or restricting portion size.

Benefits

There is anecdotal evidence that the Shangri-la diet helps some people lose significant amounts of weight and maintain weight loss. Roberts, who claims to have lost 40 pounds on his diet and kept it off, maintains a website with a forum where people can post success stories.

Some specific benefits mentioned by people who have tried the Shangri-la diet:

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

- They can still have their favorite foods if they wish.
- The diet is easy to use because it doesn't require weighing and measuring foods or special cooking techniques.
- It can be readily combined with cooking for a family, eating out, or other activities that are often problematic for dieters; as one person remarked, "No one knows you're doing it."
- The oil or sugar water is inexpensive, making the Shangri-la diet one of the least stressful weight reduction regimens in terms of financial investment. An attorney who has successfully lost weight on the diet comments, " It is the cheapest diet I've ever been on. Five dollars worth of extra light (not extra virgin) olive oil from Costco or Sam's Club lasts you six months. I've probably eaten less than half the food I would have otherwise eaten in that time. Even if I bought a copy of the book every week . . . I would still come out ahead on what I spend on food."

Precautions

According to Roberts, diabetics should not use the sugar water option but take only oil if they follow the Shangri-la diet. In addition, people should not use strong-flavored oils, such as ordinary olive oil or **flaxseed** oil, because the flavors in those oils will prevent breaking the brain's association between flavor and calorie intake.

Roberts also warns that individual body chemistry seems to affect the time it takes the Shangri-la diet to have an effect on the dieter's appetite. Some people apparently feel a difference within a few hours of their first dose of flavorless oil, others take several days, and some may require three weeks to notice a change in appetite.

Risks

There do not seem to be any major risks to health associated with the Shangri-la diet, provided that the dieter consumes an appropriate balance of nutrients, vitamins, and minerals; and consults a physician beforehand to exclude the possibility of a previously undiagnosed serious health condition.

Research and general acceptance

One of the major criticisms of the Shangri-la diet is its lack of pre-publication clinical testing on a group of subjects. John Ford, an assistant professor of medicine who is highly skeptical of Roberts's claims, notes that Roberts, himself a scholar, should have had more academic integrity. In an online article published in May 2006, shortly after the first press run of Roberts's book, Ford said, " . . . the scientific method exists for a reason: to root out poor hypotheses and to direct research towards those more likely to be fruitful. If Roberts were truly interested in investigating his approach, he should have subjected it to the dispassionate rigor of clinical study and peer review. His hypothesis is clearly testable with a controlled trial by a careful scientist willing to be proven wrong if necessary. That hasn't happened. Presenting a highly speculative idea as proven science to an audience unlikely to appreciate the difference between an academic psychologist dabbling in this field and seasoned experts who have devoted their careers to it is misleading at best . . . ."

Ford goes on to point out that the published article that Roberts has posted on his website is not about the Shangri-la diet but rather a speculative essay about self-experimentation as a way to generate ideas for further exploration. Self-experimentation is not necessarily inappropriate as a technique in medicine or nutrition; a recent book on the history of medical self-experimentation devotes a full chapter to physicians who risked their lives testing the role of vitamins in preventing scurvy and other diseases by subjecting themselves to diets lacking these vitamins. The question, however, is whether the results of Roberts's self-experiment with weight control can be generalized to other overweight people. As of early 2007, no articles about the effectiveness of or risks associated with the Shangri-la diet have appeared in any peer-reviewed medical or nutrition journal. In addition, the diet has not been endorsed by the American Dietetic Association (ADA) or any other professional nutritionists' association. It has, however, been featured in such popular magazines as *Woman's World.*

One researcher in the field of appetite and taste, however, has been quoted as saying that Roberts's theory about the human mind's association of food flavor with calorie intake is open to question. Dr. Mark Friedman, a physiologist at the Monell Chemical Senses Center in Philadelphia, an independent institute that collaborates on research projects with the University of Pennsylvania, commented in an interview with the *Dallas Morning News* that "The idea that the taste of food can set food intake and the calories you eat over the long term is an idea that has no scientific evidence." Friedman allows that research done at Monell does indicate that people tend to like safe, familiar foods and thereby learn certain food preferences. "But that doesn't mean you'll overeat."

Resources

BOOKS

Altman, Lawrence K., MD. *Who Goes First? The Story of Self-Experimentation in Medicine*, especially Chapter

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

11, "Dietary Deprivations." Berkeley, CA: University of California Press, 1998.

Roberts, Seth. *The Shangri-la Diet: The No Hunger, Eat Anything, Weight-Loss Plan*. New York: G.P. Putnam's Sons, 2006.

PERIODICALS

DelVecchio, Rick. "UC Professor's Book Touts Oil and Sugar Solution." *San Francisco Chronicle*, May 30, 2006. Available online at http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2006/05/30/BAGGGJ48CR1.DTL (accessed March 11, 2007).

"Instant Will Power!" *Woman's World*, October 3, 2006. Available online in PDF format at http://www.sethroberts.net/reviews/2006-10-03_Womans_World.pdf (accessed March 11, 2007).

Pierce, Kim. "Can You Fool the Fat Off?" *Dallas Morning News*, May 30, 2006. Available online at http://www.dallasnews.com/sharedcontent/dws/fea/healthyliving2/stories/DN-NH_shangrila_0530liv.ART0.State.Edition1.13515c13.html (accessed March 11, 2007).

VIDEO

Kapoor, Sarah. Mini-documentary on the Shangri-la diet. Canadian Broadcasting Company, aired on *CBC News: Sunday Night*, April 30, 2006. Available online at http://www.youtube.com/watch?v=hR33LNwgGIc (accessed March 11, 2007). Runs about 9 minutes.

OTHER

Ford, John, MD. "Troubles in Shangri-La." *TCS Daily*, May 22, 2006. Available online at http://www.tcsdaily.com/Article.aspx?id=052206D (accessed March 11, 2007).

Marsh, Stephen B. "Seth Roberts's *Shangri-la Diet* Reviewed." *CalorieLab Calorie Counter News*, April 9, 2006. Available online at http://calorielab.com/news/2006/04/09/seth-roberts-shangri-la-diet-reviewed/ (accessed March 12, 2007).

"Oil and Water: Key to Weight Loss?" *ABC News Report*, November 14, 2005. Available online at http://abcnews.go.com/GMA/BeautySecrets/story?id=1310260 (accessed March 11, 2007).

Roberts, Seth, PhD. "Self-Experimentation as a Source of New Ideas: Ten Examples about Sleep, Mood, Health, and Weight." *Behavioral and Brain Sciences* 27 (2004): 227–288. Available online in PDF format at http://repositories.cdlib.org/postprints/117/ (accessed March 10, 2007).

ORGANIZATIONS

American Dietetic Association (ADA). 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606-6995. Telephone: (800): 877-1600. Website: http://www.eatright.org.

Dietitians of Canada/Les diététistes du Canada (DC). 480 University Avenue, Suite 604, Toronto, Ontario, Canada M5G 1V2. Telephone: (416) 596-0857. Website: http://www.dietitians.ca.

Monell Chemical Senses Center. 3500 Market Street, Philadelphia, PA 19104-3308. Telephone: (215) 898-6666. Website: http://www.monell.org/index.htm.

Rebecca J. Frey, PhD

Sheep sorrel

Description

Sheep sorrel (*Rumex acetosella*) is a tall herb that is found in grasslands, prairies, meadows, fields, pastures, and roadsides of Europe, Asia, and North America. This perennial plant from the buckwheat (Polygonaceae) family was originally from Eurasia, but is now naturalized throughout Canada and the United States. Sheep sorrel is also known as field sorrel, red top sorrel, sour grass, common sorrel, and dog eared sorrel. The plant is related to other highly acidic members of the *Rumex* genus, including French or garden sorrel (*Rumex acetosa*).

Sheep sorrel. *(© blickwinkel / Alamy)*

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Astringent—A substance that causes tissues to contract.

Dermatitis—A condition where the skin is red and inflamed, often accompanied by pain and itching.

Diaphoretic—A substance that induces sweating.

Diuretic—A substance that promotes urination.

Infusion—An herbal tea created by steeping herbs in hot water. Generally, leaves and flowers are used in infusions.

Perennial—A plant that lives for many years; comes back yearly without replanting.

Sheep sorrel is considered a common weed in the United States. Its slim, reddish stems grow to a height of 4-24 in (10-60 cm). Narrow, arrow-shaped leaves that have a pungent lemon scent grow to 1-4 in (2-10 cm) long. The slender roots grow to a depth of 5 feet (1.5 m). Near the upper part of the stem are small, yellow or red flowers that bloom in the spring and summer, generally from April to September. The male plant has yellow flowers while the female plant has red flowers.

Sheep sorrel has antioxidant, diuretic, detoxifying, laxative, astringent, and diaphoretic properties. The herb is a rich source of vitamins and minerals. Vitamins B-complex, C, D, E, K, and P are included in sheep sorrel. It contains **sodium**, **calcium**, **sulfur**, **iron**, **magnesium**, chlorine, silicon, **copper**, **iodine**, **manganese**, **zinc**, and **beta carotene**. The silicon in sheep sorrel may help the nervous system. Other constituents of sheep sorrel are malic, oxalic, tannic, and tartaric acids; chlorophyll; rutins; polysaccharides; protein; and **carotenoids**.

The oxalic acid in sheep sorrel is the substance that gives the leaves a sour, lemony taste. Large intakes of sheep sorrel can be poisonous due to the oxalic acid content. Livestock that have eaten excessive quantities of sheep sorrel have been poisoned. It has also been reported that large consumption of sheep sorrel causes **dermatitis** in some animals. Too much oxalic acid can prevent the body from using important nutrients, especially calcium. When the plant is cooked, the oxalic acid content is reduced.

Origins

French sorrel has been used as a food for hundreds of years. Native Americans ate the leaves, stems, seeds, and roots, and seasoned their meats and bread with the herb. The Irish used French sorrel as an ingredient in soup and the French added the leaves to salads. In colonial times, sugar and vinegar were added to French sorrel leaves to create a sauce that was eaten over cold meat. A dark green, brown, or dark gray dye was made from the roots. Medicinally, sheep sorrel was used as a folk remedy to treat **cancer**.

General use

Today, French sorrel is still used as a food. The leaves are used as a thickener in soups, ground into a powder and made into noodles, or added to salads.

Sheep sorrel is gaining popularity as an anticancer agent and for its ability to break down and reduce tumors. A poultice made from sheep sorrel is reported to have a drawing effect on tumors or cysts. Sheep sorrel's rutins and polysaccharides act to prevent tumors and other cancerous growths. The beta carotene contained in sheep sorrel acts as an antioxidant, increasing the production of white blood cells and T-cells (cancer-killing cells). The chlorophyll in sheep sorrel acts to purify the liver, promote regeneration of tissue, decrease swelling of the pancreas, strengthen cell walls, cleanse the blood, and may increase resistance to x rays. The oxalic acid also has antitumor and anticancer properties.

Sheep sorrel is an ingredient in **essiac tea**, an herbal preparation that was adopted from an Ojibwa recipe and is used to treat a variety of cancers. The tea also contains rhubarb, **burdock root**, and **slippery elm**. Sheep sorrel has also been used to treat the side effects of chemotherapy.

Herbalists recommend sheep sorrel for treating mouth and throat ulcers, digestive disorders, **hemorrhoids**, loss of appetite, fevers, scurvy, and **infections**. The juice extracted from the fresh plant is used to treat urinary and kidney disease. Sheep sorrel can be applied externally as a topical wash for skin problems such as herpes, **eczema**, and itchy **rashes** including poison ivy and **hives**.

Preparations

All parts of sheep sorrel (leaves, flowers, roots, and stems) are used medicinally. The leaves and stems should be harvested in the spring or summer before the flowers form. The roots are harvested in the fall.

Small quantities of the leaves of sheep sorrel may be eaten in salads or boiled as a green vegetable. Sheep sorrel is also available in tincture, capsule, or tea form.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

For the tincture, 30-120 drops may be diluted in a glass of water and drunk daily.

The leaves are brewed as a tea to treat **fever**, inflammation, and scurvy. A tea made from the roots is used for **diarrhea** and excessive menstrual bleeding. To create an infusion, the leaves and stems are steeped in hot water for five minutes, or the roots are steeped 10 minutes, and 2-3 cups can be drunk daily.

Precautions

Due to the high oxalic acid content, large doses of sheep sorrel can be toxic. Oxalic acid can cause **kidney stones**, irritate the kidneys, or worsen an existing kidney disorder. For these reasons, those with kidney problems or who are prone to kidney ailments should not use sheep sorrel.

When using the leaves as a food, eat small quantities, or cook them to reduce the oxalic content.

People with arthritis, rheumatism, **endometriosis**, **gout**, or kidney stones should use caution when taking sheep sorrel since it may aggravate their condition.

Sheep sorrel should not be used by children, infants, or pregnant or breast-feeding women.

Side effects

High doses of sheep sorrel may cause **nausea**, a tingling sensation of the tongue, or a severe **headache**.

Interactions

There are no known interactions.

Resources

BOOKS

Duke, James A. *The Green Pharmacy*. Emmaus, PA: Rodale Press, 1997.

Jennifer Wurges

Shepherd's purse

Description

Shepherd's purse is the plant *Capsella bursa-pastoris*. It is a member of the mustard family. Thought to have originated in Europe, shepherd's purse now grows wild around the world in temperate and sub-arctic regions; it is not found in the tropics.

Shepherd's purse plant, flowering. *(TH Foto-Werbung / Photo Researchers, Inc.)*

Shepherd's purse grows best in sunny locations with clay or sandy loam soil that hasn't been disturbed. Nevertheless, it is an adaptable plant and can survive in poor soils and partial shade. It is often found growing along roadsides, in the cracks of sidewalks, on farmland that is not in production, and along the edges of gardens. Shepherd's purse has moderate water requirements and can withstand short periods of drought. It reproduces only from seed, and the seeds will not germinate unless the soil is disturbed. In the United States, shepherd's purse is considered an invasive weed that takes over habitats and forces out native plants in Arizona, California, Hawaii, Maryland, Nevada, Utah, and Vermont.

Shepherd's purse can be either a hardy annual, completing its life cycle in one growing season, or a biennial, needing two seasons to grow, flower, and make seeds. The plant grows to a height of 4–20 inches (10–100 cm), with taller, larger plants being found in better soil. Lobed, lance-shaped leaves 1–2.5 inches (3–6 cm) across lie close to the ground and form a rosette around the base of the stem. Leaves on the stem are much smaller than those at the base. Small flowers are white to pinkish. Seed pods are triangular or heart-shaped and produce very tiny dark orangish seeds that are dispersed by the wind.

Shepherd's purse gets its name from the shape of its seed pouches, which resemble old-fashioned leather purses. The plant is known throughout the world by many names including shepherd's bag, shepherd's sprout, lady's purse, witches' pouches, rattle pouches, case-weed, pick-pocket, blindweed, pepper-and-salt, cocowort, poor man's parmacetti, sanguinary, St. James's weed, toywort, clappendpouche (Ireland), bourse de pasteur (France), and Hirtentasche (Germany).

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

General use

Shepherd's purse has two general uses, as food and as an herbal remedy. As food, shepherd's purse can be eaten either raw or cooked. All parts of the plant are safe to eat, but usually only tender young leaves that are picked before the plant flowers are eaten. Older leaves become tough, bitter, and unappetizing. The young leaves can be used raw in salad or cooked the same ways that mustard greens are cooked. The leaves are high in vitamin B_1, flavonoids, **antioxidants**, and **choline**. The leaves contain about 2.9% protein and 3.4% carbohydrate.

When bruised, shepherd's purse gives off an unpleasant odor, but the taste of the young leaves is not at all like this smell. When chickens feed on shepherd's purse, the yolk of their eggs becomes dark and stronger-tasting. Cattle who feed on shepherd's purse produce milk that has an unpleasant taste from the herb.

In the 21st century, shepherd's purse is not much used by professional herbalists, but it continues to be used as a home herbal remedy as it has been for thousands of years. For medicinal uses, fresh shepherd's purse is much preferred to dried material because the herb loses much of its potency when dried. The herb is common, so obtaining fresh material is not usually difficult. Shepherd's purse is used in both internal and external remedies.

Traditionally, shepherd's purse has been used primarily to treat a range of conditions, especially internal bleeding from the lungs, gastrointestinal tract, kidneys, and female reproductive system. It is said to be especially useful in treating heavy and prolonged menstrual bleeding (menorrhagia), non-menstrual bleeding and discharge from the uterus (for example, bleeding caused by **uterine fibroids**), and bleeding after **childbirth**. The herb is also used either alone or in combination with other herbs to treat **premenstrual syndrome** (PMS). It can also be effective in treating **nosebleeds**. Externally, juice from shepherd's purse is applied to skin **wounds** and **burns**. In **Traditional Chinese Medicine** and some European cultures, shepherd's purse is used to treat urinary tract **infections**. In homeopathic medicine, the herb is used to treat bleeding from the uterus and other internal organs.

In modern medical usage, the German Federal Health Agency's Commission E (established in 1978 to independently review and evaluate scientific literature and case studies pertaining to herb and plant medications) has approved the use of shepherd's purse for treatment of menstrual irregularities, nosebleeds, wounds, and burns. Controlled scientific research on the effects that shepherd's purse has on the cardiovascular system is mixed. The herb has been shown to increase the strength of heart contractions and to increase heart rate. However, some studies have found the herb increased blood pressure, while others found blood pressure decreased. One explanation for these contradictory findings is that shepherd's purse often is the host for two different species of fungi. In some of these studies, the fungi may have inadvertently contaminated the herb and altered its effects.

In animal studies, extracts of shepherd's purse have substantially inhibited the growth of solid tumors. Fumeric acid has been isolated from the extract and is thought to cause this inhibitory effect. However, as of 2008, this effect of shepherd's purse had not been studied in humans in a rigorous way.

Preparations

Fresh herb is always preferred over dried material. Shepherd's purse can be prepared as a tea and taken to relieve premenstrual symptoms or used externally. The tea is made by adding 3–5 g of drug to 150 mL (3/4 cup) of boiling water. The tea can be drunk several times a day. According to the German Commission E, the average daily medicinal dose of shepherd's purse is 10–15 g of drug. Shepherd's purse can also be prepared as a liquid extract. The liquid extract daily dosage is 5–8 g of drug.

Precautions

Pregnant women should not use shepherd's purse. The herb appears to increase uterine contractions and may increase the risk of miscarriage. Shepherd's purse also should not be used by women who are breastfeeding. Prolonged use of shepherd's purse may be inappropriate for people with **hypertension** (high blood pressure) or hypotension (low blood pressure).

In the United States, herbal remedies are considered dietary supplements, and are regulated under the 1994 Dietary Supplement Health and Education Act (DSHEA). At the time the act was passed, legislators felt that because many dietary supplements come from natural sources such as plants and have been used for hundreds of years by practitioners of complementary and alternative medicine, these products did not need to be as rigorously regulated as prescription and over-the-counter drugs. One result of this legislation is that the amount of active ingredient in herbal remedies such as shepherd's purse is not standardized. Since herbs are grown in varying environments, there is natural difference in their composition, so that it

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Annual—A plant that completes its life cycle of growing leaves, blooming, and producing seeds in a single year or growing season.

Antioxidant—A molecule that prevents oxidation. In the body antioxidants attach to other molecules called free radicals and prevent the free radicals from causing damage to cell walls, DNA, and other parts of the cell.

Biennial—A plant that takes two years or two distinct growing seasons to complete its life cycle. In the first year it grows leaves only; in the second it flowers and produces seeds.

Choline—Choline is a nutrient required by the body. It does not meet the classic definition of a vitamin because the body makes some choline but not enough to support health. The remainder must be acquired through diet.

Flavonoids—A large class of antioxidants.

may be difficult for individuals to know the strength of herbal remedies.

Side effects

The entire shepherd's purse plant is edible. When used medicinally in the recommended dosage, no side effects have been observed. In studies using injected extract, large doses have been reported to cause racing heartbeat, uterine contractions, and abnormalities in blood pressure.

Interactions

There are no documented interactions between shepherd's purse and any pharmaceutical drugs or herbal remedies.

Resources

BOOKS

Blumenthal, Mark, ed. *The Complete German Commission E Monographs: Therapeutic Guide to Herbal Medicines*. Boston: Integrative Medicine Communications, 1998.

Chevallier, Andrew. *Herbal Remedies*. New York: DK Publishing, 2007.

Foster, Steven and Rebecca Johnson. *National Geographic Desk Reference to Nature's Medicine*. Washington, DC: National Geographic Society, 2006.

PDR for Herbal Medicines, 4th ed. Montvale, NJ: Thompson Healthcare, 2007.

ORGANIZATIONS

Alternative Medicine Foundation. P. O. Box 60016, Potomac, MD 20859. (301) 340-1960. http://www.amfoundation.org.

Centre for International Ethnomedicinal Education and Research (CIEER). http://www.cieer.org.

OTHER

"Shepherd's Purse." *Botanical.com*. undated [cited January 31, 2008]. http://www.botanical.com/botanical/mgmh/s/shephe47.html .

"Shepherd's Purse." *Flora Health*. [cited January 31, 2008]. http://www.florahealth.com/flora/home/Canada/HealthInformation/Encyclopedias/Shepherd%60s Purse.htm.

"Shepherd's Purse." *kingdonPlantae.net*. undated [cited January 31, 2008]. http://www.kingdomplantae.net/shepherdsPurse.php.

"Shepherd's Purse: Capsella bursa-pastoris (L.) Medik." *Montana.Plant-Life*. undated [cited January 31, 2008]. http://montana.plant-life.org/species/capse_bur.htm.

Tish Davidson, A. M.

Shiatsu

Definition

Shiatsu is a manipulative therapy developed in Japan and incorporating techniques of *anma* (Japanese traditional massage), **acupressure**, stretching, and Western massage. Shiatsu involves applying pressure to special points or areas on the body in order to maintain physical and mental well being, treat disease, or alleviate discomfort. This therapy is considered holistic because it attempts to treat the whole person instead of a specific medical complaint. All types of acupressure generally focus on the same pressure points and so-called energy pathways, but may differ in terms of massage technique. Shiatsu, which can be translated as finger pressure, has been described as needle-free acupuncture.

Origins

Shiatsu is an offshoot of anma that developed during the period after the Meiji Restoration in 1868. Traditional massage (anma) used during the age of shoguns was being criticized, and practitioners of *koho anma* (ancient way) displeased with it introduced new practices and new names for their therapies.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Shiatsu massage. *(© Stock Connection Distribution / Alamy)*

KEY TERMS

Acupressure—An ancient form of Asian healing massage that involves applying pressure to special points or areas on the body in order to maintain good health, cure disease, and restore vitality.

Analgesic—Pain reliever.

Osteoporosis—A disease of the bones due to deficiency of bone matrix, occurring most frequently in postmenopausal women.

Palpate—Feel.

During the twentieth century, shiatsu distinguished itself from anma through the merging of Western knowledge of anatomy, koho anma, *ampuku* (abdominal massage), acupressure, *Do-In* (breathing practices), and Buddhism. Based on the work of Tamai Tempaku, shiatsu established itself in Japan and worldwide. The Shiatsu Therapists Association was found in 1925 and clinics and schools followed. Students of Tempaku began teaching their own brand of shiatsu, creating branch disciplines. By 1955, the Japanese Ministry of Health and Welfare acknowledged shiatsu as a beneficial treatment and licensing was established for practitioners.

Benefits

Shiatsu has a strong reputation for reducing stress and relieving **nausea** and **vomiting**. Shiatsu is also believed to improve circulation and boost the immune system. Some people use it to treat diarrhea, **indigestion**, constipation, and other disorders of the gastrointestinal tract; menstrual and menopausal problems; chronic pain; migraine; arthritis; **toothache**; anxiety; and **depression**. Shiatsu can be used to relieve muscular **pain** or tension, especially neck and back pain. It also appears to have sedative effects and may alleviate insomnia. In a broader sense, shiatsu is believed to enhance physical vitality and emotional well being.

Description

Shiatsu and other forms of Japanese acupressure are based on the concept of *ki*, the Japanese term for the all-pervading energy that flows through everything in the universe. (This notion is borrowed from the Chinese, who refer to the omnipresent energy as qi or chi.) Ki tends to flow through the body along special energy pathways called meridians, each of which is associated with a vital organ. In Asian systems of traditional medicine, diseases are often believed to occur due to disruptions in the flow this energy through the body. These disruptions may stem from emotional factors, climate, or a host of other causes including **stress**, the presence of impurities in the body, and physical trauma.

The aim of shiatsu is to restore the proper flow of bodily energy by massaging the surface of the skin along the meridian lines. Pressure may also be applied to any of the 600 or so acupoints. Acupoints, which are supposedly located just under the skin along the meridians, are tiny energy structures that affect the flow of ki through the body. When ki either stagnates and becomes deflected or accumulates in excess along one of these channels, stimulation to the acupoints, which are sensitive to pressure, can unblock and regulate the ki flow through toning or sedating treatment.

Western medicine hasn't proven the existence of meridians and acupoints. However, in one study, two French medical doctors conducted an experiment at Necher Hospital in Paris to test validity of theory that energy is being transported along **acupuncture** meridians. They injected and traced radioactive isotopes with gamma-camera imaging. The meridians may actually correspond to nerve transmission lines. In this view, shiatsu and other forms of healing massage may trigger the emission of naturally occurring chemicals called neurotransmitters. Release of these chemical messengers may be responsible for some of the therapeutic effects associated with shiatsu, such as pain relief.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Preparations

People usually receive shiatsu therapy while lying on a floor mat or massage table or sitting up. The massage is performed through the clothing—preferably a thin garment made from natural fibers—and disrobing is not required. Pressure is often applied using the thumbs, though various other parts of the body may be employed, including fingertips, palms, knuckles, elbows, and knees—some therapists even use their feet. Shiatsu typically consists of sustained pressure (lasting up to 10 seconds at a time), squeezing, and stretching exercises. It may also involve gentle holding as well as rocking motions. A treatment session lasts anywhere from 30 to 90 minutes.

Before shiatsu treatment begins, the therapist usually performs a general health assessment. This involves taking a family medical history and discussing the physical and emotional health of the person seeking therapy. Typically, the practitioner also conducts a diagnostic examination by palpating the abdomen or back for any energy imbalances present in other parts of the body.

Precautions

While shiatsu is generally considered safe, there are a few precautions to consider. Because it may increase blood flow, this type of therapy is not recommended in people with bleeding problems, heart disease , or **cancer**. Massage therapy should always be used with caution in those with **osteoporosis**, fresh **wounds** or scar tissue, bone **fractures**, or inflammation.

Applying pressure to areas of the head is not recommended in people with **epilepsy** or high blood pressure, according to some practitioners of shiatsu.

Shiatsu is not considered effective in the treatment of fever, **burns**, and infectious diseases.

Shiatsu should not be performed right after a meal.

Side effects

When performed properly, shiatsu is not associated with any significant side effects. Some people may experience mild discomfort, which usually disappears during the course of the treatment session.

Research and general acceptance

Like many forms of massage, shiatsu is widely believed to have a relaxing effect on the body. There is also a significant amount of research suggesting that acupressure techniques can relieve nausea and vomiting associated with a variety of causes, including **pregnancy** and anesthetics and other drugs. In one study, published in the *Journal Of Nurse-midwifery* in 1989, acupressure was shown to significantly reduce the effects of nausea in 12 of 16 women suffering from morning sickness. Five days of this therapy also appeared to reduce anxiety and improve mood. Another investigation, published in the *British Journal Of Anaesthesia* in 1999, studied the effects of acupressure on nausea resulting from the use of anesthetics. Pressure applied to an acupoint on the inside of the wrist appeared to alleviate nausea in patients who received anesthetics during the course of laparoscopic surgery.

Shiatsu may also produce sedative and analgesic effects. The sedative powers of acupressure were investigated in a study published in the *Journals of Gerontology* in 1999, which involved over 80 elderly people who suffered from sleeping difficulties. Compared to the people in the control groups, the 28 participants who received acupressure were able to sleep better. They slept for longer periods of time and were less likely to wake up during the night. The researchers concluded that acupressure may improve the quality of sleep in older adults. The use of acupressure in postoperative pain was investigated in a study published in the *Clinical Journal Of Pain* in 1996. In this study, which involved 40 knee surgery patients, one group received acupressure (15 acupoints were stimulated) while the control group received sham acupressure. Within an hour of treatment, members of the acupressure group reported less pain than those in the control group. The pain-relieving effects associated with acupressure lasted for 24 hours.

Shiatsu may benefit **stroke** victims. The results of at least one study (which did not include a control group) suggest that shiatsu may be useful during stroke rehabilitation when combined with other treatments.

Training and certification

A qualified shiatsu therapist must have completed courses in this form of therapy and should be nationally certified or licensed by the state (most are certified by the American Oriental Bodywork Therapy Association). Asking a medical doctor for a recommendation is a great place to start. It can also be helpful to consult friends and family members who have tried shiatsu. There are several massage-related organizations that offer information on locating a qualified therapist. These include the National Certification Board for Therapeutic Massage and Bodywork, the American **Massage Therapy** Association, the International School of Shiatsu, and the American Oriental Bodywork Therapy Association.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Resources

BOOKS

Cook, Allan R. *Alternative Medicine Sourcebook*. Detroit: Omnigraphics, 1999.

PERIODICALS

Chen, M.L., L.C. Lin, S.C. Wu, et al. "The effectiveness of acupressure in improving the quality of sleep of institutionalized residents." *J Gerontol A Biol Sci Med Sci* (1999): M389-94.

Felhendler, D. and B. Lisander. "Pressure on acupoints decreases postoperative pain." *Clin J Pain* (1996): 326-329.

Harmon, D., J. Gardiner, R. Harrison, et al. "Acupressure and the prevention of nausea and vomiting after laparoscopy." *Br J Anaesth* (1999): 387-390.

Hogg, P.K. "The effects of acupressure on the psychological and physiological rehabilitation of the stroke patient." *Dissertation Abstracts Int* (1986): 841.

Hyde, E. "Acupressure therapy for morning sickness. A controlled clinical trial." *J Nurse Midwifery* (1989): 171-178.

ORGANIZATIONS

Acupressure Institute. 1533 Shattuck Avenue, Berkeley, CA 94709.

American Massage Therapy Association. 820 Davis Street, Suite 100, Evanston, IL.

American Oriental Bodywork Therapy Association. 50 Maple Place, Manhassett, NY 11030.

International School of Shiatsu. 10 South Clinton Street, Doylestown, PA 18901.

National Certification Board for Therapeutic Massage and Bodywork. 8201 Greensboro Drive, Suite 300, McLean, VA 22102.

OTHER

International School of Shiatsu. http://www.shiatsubo.com.

Medline. http://igm.nlm.nih.gov.

Greg Annussek

Shiitake mushroom

Description

Shiitake mushroom (*Lentinus edodes*) is a fungus native to Japan, China, and Korea. Now cultivated

Fresh shiitake mushrooms. *(Photo by Kelly Quin. Reproduced by permission.)*

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Shiitake mushroom. *(© Runk/Schoenberger / Alamy)*

KEY TERMS

Fungus—A type of plant that lives by decomposing and absorbing the organic material in which it grows.

Lentinan—A compound found in shiitake mushrooms that helps to boost the immune system.

Nutraceutical—Any food or food ingredient that is thought to provide health benefits, including the prevention and treatment of disease. Shiitake is now considered an important nutraceutical.

Potentiation—A type of drug interaction in which one drug or herbal preparation intensifies or increases the effects of another.

worldwide, Japan is still the largest producer of shiitake mushrooms, producing 80% of the total supply. Used in Asian cuisine for over 2,000 years, cultivation of shiitake began almost 700 years ago in Japan. The Japanese consider the shiitake not only a flavorful food but also "the elixir of life." During the Ming Dynasty (1368–1644), the shiitake was reserved only for the emperor and his family and it became known as the emperor's food. The word shiitake comes from *shii* (a type of chestnut tree) and *take* (mushroom). Shiitake is an excellent source for **amino acids**; vegetable proteins; **iron**; **thiamine** (vitamin B_1); **riboflavin** (vitamin B_2); **niacin**; and vitamins B_6, B_{12}, and D_2. Shiitake is known as *hsaing ku* (fragrant mushroom) in China.

General use

Traditionally, shiitake was used medicinally for a number of conditions.

- colds and influenza
- headaches
- sexual dysfunction
- constipation
- measles
- hemorrhoids
- diabetes
- gout

Presently, shiitake has been shown to boost the immune system, act as an antiviral and antibacterial agent, and possibly shrink tumors. Since shiitake has been part of the Asian diet, particularly in Japanese cuisine, for hundreds of years, its health benefits have been documented. Most of the formal studies conducted have been in Japan; however Western interest in the mushroom as a possible treatment for **cancer** and HIV infection has encouraged researchers in the United States and elsewhere to begin formalized studies of its medicinal properties. A 1998 study done in San Francisco of lentinan, a glucan (complex sugar) found in shiitake, found that patients with HIV infection who were given lentinan together with a standard drug for **AIDS** maintained higher CD4 cell counts for longer periods of time than those who were given the standard drug alone.

The possible health benefits of lentinan have also led to agricultural experiments intended to raise the level of the compound in commercially grown shiitake. Researchers found that mushrooms grown on logs had higher levels of lentinan than mushrooms grown on other types of organic material.

Shiitake contains over 50 different enzymes, including pepsin and trypsin that help digestion and asparaginase that has been used to treat childhood **leukemia**. The mushroom also contains chitin, eritadenine, and lentinacin, all of which have been shown to lower serum **cholesterol**. Further studies completed in 2002 have confirmed the beneficial effects of shiitake in lowering serum cholesterol levels.

Perhaps shiitake's most beneficial ingredient is activated hexose-containing compound (also known as 1,3-beta glucan). Japanese studies of this compound have supported evidence that it has anti-cancer properties in humans as well as in animals. The compound is already produced by a private company as a nutritional supplement and is available in Europe, Japan, and the United States. It is also regularly used in hospitals in Asia and Japan in conjunction with allopathic treatments of several kinds of cancer. According to a Hokkaido University School of Medicine study of cancer patients taking the supplement on a daily basis, the

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

compound may slow tumor growth and decrease the side effects caused by allopathic cancer treatments. The University of California Davis School of Medicine is conducting the first human trial outside of Japan to determine the anti-tumor effects activated hexose-containing compound may have on cancer patients. The focus of the study will be on patients with prostrate cancer because the characteristic symptom of the cancer—elevated PSA levels in the blood—are easily detected and monitored for change.

Activated hexose-containing compound is isolated from partially grown mushroom spores that have undergone a treatment that releases the compound. It is not abundant in the mushrooms that are readily available in grocery stores, but the overall health benefits from shiitake mushrooms has been corroborated by research.

Preparations

Shiitake production in the United States has risen markedly since 1980. Since shiitake is now being marketed as a nutraceutical, or food that is thought to provide health benefits above and beyond its nutritional value, its production is expected to rise even further.

Shiitake mushrooms can be prepared and eaten in the same way the more common white mushrooms are, by grilling, sautéing, and stir-frying. Dried shiitake mushrooms are used in soups, stews, and sauces. Eat one to two fresh mushrooms or 1–2 tsp of dried shiitake daily.

Shiitake supplements are also available in gel-cap form, as well as powders, extracts, and tea, at health food stores. Shiitake is also an ingredient in compound formulas to boost the immune system. The newest product of this type is a mixture of dried shiitake, reishi, and **maitake** mushrooms that have been grown on a base of therapeutic herbs. Consumers who use these products should follow the recommended daily dosage on the label.

Injections of shiitake should be prescribed and monitored by a healthcare provider.

Precautions

Shiitake is nontoxic and safe to ingest.

Side effects

Large daily doses over a prolonged period of time can cause **diarrhea** in some users.

Interactions

Shiitake has been reported to interact supportively with didanosine (Videx), a drug given to treat HIV infection. Because shiitake can lower blood pressure, it should not be taken together with drugs given to control blood pressure (antihypertensives). For the same reason, it should be discontinued before any operation requiring general anesthesia.

Resources

BOOKS

Atkins, Robert C. M.D. *Dr. Atkins' Vita-Nutrient Solution.* New York: Simon & Schuster, 1998.

Carper, Jean. *Food—Your Miracle Medicine: How Food Can Prevent And Cure Over 100 Symptoms and Problems.* New York: HarperCollins, 1993.

Duke, James A. *The Green Pharmacy.* Emmaus, PA: Rodale Press, 1997.

Harrar, Sari, and Sara Altshul O Donnell. *The Woman's Book of Healing Herbs.* Emmeus, PA: Rodale Press, 1999.

Mindell, Earl. *Earl Mindell's Herb Bible.* New York: Simon & Schuster, 1992.

PERIODICALS

Brauer, D., T. Kimmons, and M. Phillips. "Effects of Management on the Yield and High-Molecular-Weight Polysaccharide Content of Shiitake (*Lentinula edodes*) Mushrooms." *Journal of Agricultural and Food Chemistry* 50 (September 11, 2002): 5333-5337.

Fuchs, Nan Kathryn. "A Brand New Super Nutrient!" *Women's Health Letter* 8 (August 2002): 1-3.

Gordon, M., B. Bihari, E. Goosby, et al. "A Placebo-Controlled Trial of the Immune Modulator, Lentinan, in HIV-Positive Patients: A Phase I/II Trial." *Journal of Medicine* 29 (5-6): 305-330.

Shimada, Y., T. Morita, and K. Sugiyama. "Effects of *Lentinus edodes* on Fatty Acid and Molecular Species Profiles of Phosphatidylcholine in Rats Fed Different Levels of Corn Oil." *Bioscience, Biotechnology, and Biochemistry* 66 (August 2002): 1759-1763.

ORGANIZATIONS

American Association of Oriental Medicine. 5530 Wisconsin Avenue, Suite 1210, Chevy Chase, MD 20815. (301) 941-1064. www.aaom.org.

United States Department of Agriculture (USDA), Agricultural Research Service (ARS). 5601 Sunnyside Avenue, Beltsville, MD 20705. (301) 504-1651. www.ars.usda.gov.

Jacqueline L. Longe
Rebecca J. Frey, PhD

Shingles

Definition

Shingles, also called herpes zoster, gets its name from both the Latin and French words for belt or girdle and refers to girdle-like skin eruptions that

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Shingles. *(© Medical-on-Line / Alamy)*

may occur on the trunk of the body. The virus that causes **chickenpox**, the *Varicella zoster* virus (VSV), can become dormant in nerve cells after an episode of chickenpox and later re-emerge as shingles.

Initially, red patches of rash develop into **blisters**. Because the virus travels along the nerve to the skin, it can damage the nerve and cause it to become inflamed. This condition can be very painful. If the **pain** persists long after the rash disappears, it is known as post-herpetic **neuralgia** (PHN).

Description

Any individual who has had chickenpox can develop shingles. Between 600,000 and one million Americans are diagnosed with shingles each year. Overall, approximately 20% of those who have had chickenpox as children develop shingles at some time in their lives. People of all ages—even children—can be affected, but the incidence increases with age. Newborns, bone marrow and other transplant recipients, and individuals with immune systems weakened by disease or drugs are also at increased risk. However, most individuals who develop shingles do not have any underlying malignancy or other immunosuppressive condition.

Causes and symptoms

Shingles erupts along the course of the affected nerve, producing lesions anywhere on the body. The condition may cause severe nerve pain. The most common areas to be affected are the face and trunk, which correspond to the areas where the chickenpox rash is most concentrated. There is usually a vague line from the spine along the path of the affected nerve on one side of the body.

The disease is caused by a reactivation of the chickenpox virus that has lain dormant in certain nerves following an episode of chickenpox. Exactly how or why this reactivation occurs is not clear. In 2002, clinicians pointed out that one of the causes of increasing cases of shingles was actually the success of chicken pox vaccinations. It is believed that the reactivation is triggered when the immune system becomes weakened as a result of age, **stress**, **fatigue**, certain medications, chemotherapy, or diseases such as

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Acyclovir—An antiviral drug that is available under the trade name Zovirax, in oral, intravenous, and topical forms. The drug prevents the varicella zoster virus from replicating.

Corticosteroid—A steroid that has similar properties to the steroid hormone produced by the adrenal cortex. It is used to alter immune responses to shingles.

Famciclovir—An oral antiviral drug that is available under the trade name Famvir. The drug prevents the varicella zoster virus from replicating.

Post-herpetic neuralgia (PHN)—The term used to describe the pain after the rash associated with herpes zoster is gone.

Tzanck preparation—A procedure in which skin cells from a blister are stained and examined under the microscope. The presence of large skin cells with many cell centers or nuclei points to a diagnosis of herpes zoster when combined with results from a physical examination.

Valacyclovir—An oral antiviral drug that is available under the trade name Valtrex. The drug prevents the varicella zoster virus from replicating.

cancer or HIV. Furthermore, in persons with HIV, shingles can be an early sign that the immune system has deteriorated.

Early signs of shingles are often vague and can easily be mistaken for other illnesses. The condition may begin with **fever** and malaise (a vague feeling of weakness or discomfort). Within two to four days, severe pain, **itching**, and numbness/tingling (paresthesia) or extreme sensitivity to touch (hyperesthesia) can develop, usually on the trunk and occasionally on the arms and legs.

Pain may be continuous or intermittent, usually lasting one to three weeks. It may occur at the time of the eruption, but can precede the eruption by days, occasionally making the diagnosis difficult.

Signs and symptoms may include the following:

- itching, tingling, or severe burning pain
- red patches that develop into blisters
- grouped, dense, deep, small blisters that ooze and crust
- swollen lymph nodes

Diagnosis

Diagnosis usually is not possible until the skin lesions develop. Once they develop, however, the pattern and location of the blisters and the type of cell damage displayed are very characteristic of the disease. This allows an accurate diagnosis based primarily upon the physical examination. Although tests are rarely necessary, they may include the following:

- Viral culture of skin lesion.
- Microscopic examination using a Tzanck preparation. This involves staining a smear obtained from a blister. Cells infected with the herpes virus appear very large and contain many dark cell centers or nuclei.
- Complete blood count (CBC) may show an elevated white blood cell count (WBC), a nonspecific sign of infection.

Treatment

A person with shingles should immediately see a doctor or health practitioner. Although the condition generally clears up within three to five weeks, treatment can ease the painful symptoms. Alternative medicine remedies and therapies will not cure shingles, but they will provide pain relief, reduce inflammation, and speed recovery.

Herbal remedies

Many herbs can be used to treat shingles. Some remedies involve brewing tea and then consuming and/or applying it to the affected area. Herbs used to treat shingles include:

- Red pepper, also known as capsicum or cayenne, is so effective that it's an ingredient in commercial ointments approved by the U.S. Food and Drug Administration. Commercial preparations include Zostrix and Capzasin-P. Red pepper is hot, so the ointment should be applied only to healed blisters. Red pepper is useful for treating painful PHN.
- Topical applications of lemon balm, licorice, or peppermint may reduce pain and blistering. These herbs may be brewed as teas and then consumed and applied to the skin.
- Herbal antivirals, such as echinacea, can be effective in fighting infection and boosting the immune system.
- Calendula ointment or lotion works to counter the virus.
- Sedative herbs such as passionflower can be brewed for a tea. Such herbs can help with treatment of post-herpetic neuralgia.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

- Vervain helps relieve pain and inflammation. St. John's wort, lavender, chamomile, and marjoram also help relieve inflammation.

Homeopathic remedies

A person with shingles should consult a homeopath for specific remedies and dosages. Homeopathic remedies include ranunculus, which is effective for shingles on the trunk. It is also taken for itching. A homeopath may recommend **rhus toxicodendron** for blisters and **arsenicum album** or hypericum for pain.

Traditional Chinese medicine

Practitioners of **traditional Chinese medicine** (TCM) recommend **acupressure** and **acupuncture** to alleviate pain. Acupuncture can help with post-herpetic neuralgia. In addition, a TCM practitioner may recommend herbal remedies such as Chinese gentian root, which is used to treat the liver. In addition, Chinese **skullcap** root is combined with water and used as a folk remedy for treating shingles in China. Also, certain herbal combinations can treat specific symptoms and contributing causes. For example, *Long Dan Xie Gan Tang* can quell the accumulation of damp, toxic heat in the liver. For damp, infected, painful eruptions on the torso, *Huang Qin Gao* can be applied to the surrounding area.

Diet and nutrition

To boost the immune system, supplement the diet with vitamin B during the first one or two days. Until health returns, continue to supplement with **vitamin B complex**, high levels of **vitamin C** with **bioflavonoids**, and **calcium**.

Food seasoned with red pepper (capsicum) may provide relief, as may foods containing the amino acid **lysine**. High-lysine foods include soybeans, black bean sprouts, lentils, **parsley**, and peas.

Home remedies

Cool, wet compresses may help reduce pain while blisters or crusting is present. Patients may be made more comfortable with the application of a cloth dipped in one-quarter cup (60 ml) of white vinegar mixed in two quarts (1.9 l) of lukewarm water. Compresses should be used twice daily for 10 minutes. When blisters dry up, the compresses may be discontinued.

Soothing treatments such as colloidal oatmeal baths, starch baths or lotions, and calamine lotion may help to relieve itching and discomfort.

When the crusts and scabs are separating, the skin may become dry, tight, and cracked. If that happens, a small amount of plain petroleum jelly can be applied to the area three or four times daily.

Ayurvedic medicine

Ayurveda is an Indian healing science that is more than 5,000 years old. Treatment is based on maintaining a balance between the body and the world. Treatment for shingles may include applying a **turmeric** paste to the skin.

Relaxation techniques

Relaxation techniques can be used to treat symptoms of shingles. Techniques such as **hypnotherapy** and **yoga** can help a person relax.

Flower remedies

Flower remedies are liquid concentrates made by soaking flowers in spring water. Also known as flower essences, 38 remedies were developed by homeopathic physician Edward Bach during the 1930s. A 39th combination formula, the **Rescue Remedy**, is taken to relieve stress. The remedy is taken by placing several drops under the tongue four times daily. Alternately, the drops may be added to a glass of water. The patient drinks the mixture throughout the day.

Reflexology

Reflexology is the manipulation of the foot to bring the body into balance. Reflex points on the foot correspond to parts of the body. These points can be treated by a reflexologist or at home by following instructions on a reflex chart.

Allopathic treatment

The antiviral drugs acyclovir, valacyclovir, and famciclovir can be used to treat shingles. These drugs may shorten the course of the illness. More rapid healing of the blisters results when drug therapy is started within 72 hours of the onset of the rash. In fact, the earlier the drugs are administered, the better, because early cases can sometimes be halted. If taken later, these drugs are less effective but may still lessen the pain. Antiviral drug treatment does not seem to reduce the incidence of post-herpetic neuralgia (PHN), but recent studies suggest famciclovir may cut the duration of PHN in half.

Side effects of typical oral doses of these antiviral drugs are minor with **headache** and **nausea** reported by 8–20% of patients. Severely immune-compromised individuals, such as those diagnosed with **AIDS**, may

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

require intravenous administration of antiviral drugs. Corticosteroids, such as prednisone, may be used to reduce inflammation but they interfere with the functioning of the immune system. Corticosteroids, in combination with antiviral therapy, are also used to reduce severe pain and to treat severe **infections**, such as those affecting the eyes.

After the blisters heal, some people continue to experience PHN for months or even years. This pain can be excruciating. Consequently, the doctor may prescribe tranquilizers, sedatives, or antidepressants to be taken at night. Attempts to treat PHN with the famciclovir have shown some promising results. When all else fails, severe pain may require a permanent nerve block.

Expected results

Shingles usually clears up within three to five weeks and rarely recurs. There have been reports that shingles cleared up several days after **licorice** ointment was applied to the skin or when the homeopathic remedy ranunculus was taken.

If the nerves that cause movement are affected, temporary or permanent nerve paralysis and/or tremors may occur. The elderly or debilitated patient may have a prolonged and difficult course and recovery. For them, the eruption is typically more extensive and inflammatory, occasionally resulting in blisters that bleed, areas where the skin actually dies, secondary bacterial infection, or extensive and permanent scarring.

Similarly, patients with compromised immune systems usually have more severe courses that are often prolonged for weeks to months. They develop shingles frequently and the infection can spread to the skin, lungs, liver, gastrointestinal tract, brain, or other vital organs.

Cases of chronic shingles have been reported in AIDS patients, especially when they have a decreased number of one particular kind of immune cell, called CD4 lymphocytes. Depletion of CD4 lymphocytes is associated with more severe, chronic, and recurrent varicella zoster virus infections. Lesions are typical at the onset but may turn into ulcers that do not heal. Herpes zoster can lead to potentially serious complications.

Many individuals continue to experience persistent pain long after the blisters heal. This post-herpatic neuralgia can be severe and debilitating. The incidence of post-herpetic neuralgia increases with age, and episodes in older individuals tend to be of longer duration. Most patients under 30 years of age experience no persistent pain. By age 40, the risk of prolonged pain lasting longer than one month increases to 33%. By age 70, the risk increases to 74%. The pain can adversely affect quality of life, but it usually diminishes over time.

Other complications include a secondary bacterial infection.

Prevention

Strengthening the immune system by making lifestyle changes is thought to help prevent the development of shingles. This includes eating a well-balanced diet rich in essential vitamins and minerals, getting enough sleep, exercising regularly, and reducing stress.

In 2002, reports from a large, five-year study showed that researchers might be nearing a workable vaccine for shingles. The vaccine is 10 times stronger than the chicken pox vaccine and similar in nature. Study results were planned for release in mid-2004.

Resources

BOOKS

Cummings, Stephen, and Dana Ullman. *Everybody's Guide to Homeopathic Medicines*. New York: Putnam, 1997.

Duke, James A. *The Green Pharmacy*. Emmaus, Pa.: Rodale Press, 1997.

Gottlieb, Bill. *New Choices in Natural Healing*. Emmaus, Pa.: Rodale Press, 1995.

Keville, Kathi. *Herbs for Health and Healing*. Emmaus, Pa.: Rodale Press, 1996.

L'Orange, Darlena. *Herbal Healing Secrets of the Orient*. Paramus, NJ: Prentice Hall, 1998.

Squier, Thomas Broken Bear, with Lauren David Peden. *Herbal Folk Medicine*. New York: Henry Holt, 1997.

Ullman, Dana. *The Consumer's Guide to Homeopathy*. New York: Putnam, 1995.

PERIODICALS

Landers, Susan J. "Rash of Pain: With an Increasingly Large Patient Population at Risk for Shingles, Researchers Focus on Uncovering New Ways to Prevent and Treat this Viral Response."*American Medical News*(April 1, 2002):32.

MacKenzie, Deborah. "The Hidden Catch: Although Chickenpox is Nasty, Vaccination Might Not be the Answer."*New Scientist*(May 4, 2002):7.

ORGANIZATIONS

Academy of Dermatology. 930 N. Meacham Road, P.O. Box 4014, Schaumberg, IL 60168-4014. (708) 330-0230. http://www.aad.org/zoster.html.

American Botanical Council. P.O. Box 201660, Austin TX, 78720. (512) 331-8868. http://www.herbalgram.org.

Herb Research Foundation. 1007 Pearl St., Suite 200, Boulder, CO 80302. (303) 449-2265. http://www.herbs.org.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

OTHER
MotherNature.com Health Encyclopedia. http://www.mothernature.com/ency.

Liz Swain
Teresa G. Odle

KEY TERMS

Myositis—Inflammation of the muscle.

Periosteum—Tissue covering the bone.

Periostitis—Inflammation of the tissue covering the bone.

Tendinitis—Inflammation of the tendon.

Tibia—One of the long bone of the lower leg.

Shin splints

Definition

Shin splints can be defined as an inflammation of the tissues in the lower leg causing **pain** with exercise. It is also referred to as medial tibial stress syndrome.

Description

Shin splints are an inflammation of the tendons, muscles, and periosteum most commonly seen in those who walk, jog, or run on hard, uneven surfaces. The resulting pain may indicate either anterior shin splints, with radiation down the front and lateral leg, or posterior shin splints, extending down the back and inner leg and ankle. Depending on the body tissues involved, shin splints may indicate myositis (an inflammation of the muscle), **tendinitis** (inflammation of the tendons), or periostitis (an inflammation of the tissue covering the bone).

Causes and symptoms

The inflammation is caused by an imbalance of the calf and shin muscles used to mobilize the forefoot with **exercise**. The associated pain in the lower leg usually worsens with exercise.

Diagnosis

The identification of shin splints is often made by the affected individual's observation of the symptoms. X rays of the lower extremity may be requested to prevent a misdiagnosis, when **stress** fractures are suspected.

Treatment

Exercise should not be resumed until it can be performed without pain. Switching from impact workouts to swimming or cycling will allow for healing to the inflamed areas. A gentle massage with lubricating oil will provide comfort and decrease swelling. An ice massage may also facilitate healing, using a circular movement over the affected area three to four times daily for 10-15 minutes. Some find heat more comforting and beneficial, applied via a heating pad or lamp, a hot shower, or whirlpool.

A well balanced, high protein diet, dietary antioxidants, and **essential fatty acids** may also promote healing. As activity level may be less than usual during the initial healing phase of shin splints, adequate fluid and fiber intake is vital to promote normal bowel function.

After at least a two-week rest period, a gradual resumption of exercise is recommended. Icing the legs for 5-10 minutes before stretching and after cool-down is recommended. Crisscross taping of the anterior leg maybe be helpful for the individual with anterior shin splints, as well as raising the heel portion of the shoe approximately one eighth of an inch. The individual with posterior shin splints should remember to hold the body erect, rather than leaning forward while running, and to avoid landing directly on the toes. An extra pair of socks for warmth while running is also recommended.

Allopathic treatment

For minor discomfort associated with shin splints, over-the-counter anti-inflammatory medications such as ibuprofen or aspirin may provide relief. If these are found to be ineffective for pain relief, prescription strength, nonsteriodal, anti-inflammatory drugs may be ordered by the physician. Physical therapy sessions for ice and/or heat application may also be helpful.

Expected results

A complete resolution of the pain associated with shin splints requires an adequate period of rest followed by a slow rehabilitation or gradual resumption of activity, ranging from two weeks to two months. Resuming activities too soon may result in a prolonged healing time and recurrence of symptoms. The change in gait and posture associated with shin splint pain may result in inflammatory or arthritic changes in the local joints, i.e. the ankle, knee, hip, or back.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Prevention

Those who exercise by running or doing high-impact aerobics should be sure to wear well-fitting shoes that offer adequate lateral and arch support, with cushioning for the ball and heel of the foot. Footwear should be re-evaluated for adequacy of support and cushioning about every six months. Warming up before and cooling down after the activity is vital, and shins should also be kept warm during exercise. Jogging on soft surfaces such as dirt or grass is preferred over hard or uneven surfaces.

Resources

BOOKS

Gottlieb, Bill. *New Choices in Natural Healing*. Emmaus, Pennsylvania: Rodale press, Inc., 1995.

Mercier, Lonnie. *Practical Orthopedics*. St. Louis, Missouri: Mosby-Year Book, Inc., 1995.

OTHER

Thriveonline. http://www.thriveonline.com/health/Library/sports.

Kathleen Wright

Shintaido

Definition

Shintaido is a non-combative form of **martial arts** designed to improve physical and mental health.

Origins

Although shintaido has its roots in the ancient and traditional Japanese martial arts, it includes elements of sword fencing, karate, and aikido. Hiroyuki Aoki, an actor, artist, and shotokai karate master, developed shintaido in Yokohama, Japan, in 1965. He formed *rakutenkai* or "meeting of people," a group of several dozen people, including martial arts instructors, artists, musicians, and actors, to create a new art form and health **exercise**. Translated from Japanese, shintaido means "new body way."

Benefits

Like many other martial arts, shintaido promotes a healthy mind and spirit as much as a healthy body. The benefits of practicing shintaido include:

- Enhancing physical health through a series of body movements, including warm-ups, vigorous exercises, fundamental movements, traditional movements, and exercises with a partner
- Eliminating stress and amplifying natural energies of the body and mind
- Developing *ki*, a Japanese word meaning internal spirit or vital energy
- Opening the mind and fostering a cheerful attitude
- Improving the ability to interact with other people
- Fostering love, peace, and magnanimity
- Increasing concentration
- Strengthening individuality and enhancing creativity

Description

The body movements in shintaido are influenced by traditional and contemporary aspects of Japanese culture, including dance, music, Noh theater, and abstract art. It involves a series of movements ranging from slow and meditative to rapid and energetic. One shintaido movement, *bojutsu*, involves using a six-foot staff, while another, *kenjutsu*, uses a wooden sword.

Most formal shintaido classes offered by schools sanctioned through the International Shintaido Federation or Shintaido of America are taught by an instructor and teaching assistant. The classes consist of wrap-ups, vigorous exercises, fundamental movements, partner practice, and traditional movements, called *kata*.

Preparations

No preparations are required to begin shintaido. It can be practiced by anyone, including children and the elderly.

Precautions

There are no precautions associated with learning shintaido.

Side effects

No serious adverse side effects had been reported from shintaido as of 2008. In rare cases, beginning students of the art may experience slight muscle or joint soreness if practice is overdone.

Research and general acceptance

Shintaido is almost universally accepted in Japan as beneficial as physical exercise, **stress** reduction, and as a tool for bringing mental clarity. It is generally accepted in western cultures, including medical science, as a legitimate and effective exercise for the mind and body. However, few, if any, controlled

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Aikido—A Japanese martial art developed during the early twentieth century by Morihei Ueshiba. Literally translated, aikido means "the way of harmony with universal energy" or "the way of a loving spirit."

Karate—A native Okinawan fighting style brought to Japan in the early twentieth century.

Noh theater—A Japanese theatrical form developed in the fourteenth century, featuring masks, extravagant costumes, bare stages, and restrained movements.

scientific studies on measurable benefits of shintaido had been conducted in the United States as of the late 2000s.

Training and certification

Most shintaido classes are taught by trained and certified instructors. There are four levels of teachers: instructor, senior instructor, general instructor, and master instructor. Many qualified teachers in the United States are examined and certified by Shintaido of America or the International Shintaido Federation. During an examination, all levels of instructors are judged on technical expertise and leadership qualities. There are also specified years of practice required for each level and apprenticeship with a more advanced instructor.

Resources

ORGANIZATIONS

Shintaido of America, PO Box 1979, Novato, CA, 94948-1979, http://www.shintaido.org.

Ken R. Wells
Leslie Mertz, Ph.D.

Microscope view of the black mold stachybotrys chartarum. This fungus is a mycotoxin producer and has been linked to sick building syndrome. *(MedicalRF.com / Alamy)*

Sick building syndrome

Definition

Sick building syndrome (SBS) is a term used to describe certain health effects people experience that may be related to poor air in buildings. The problems can be localized, for instance experienced by workers in only one section of an office or factory, or they may be widespread and experienced throughout an entire building. SBS has been reported in various settings such as hospitals, schools, industrial and art business, and care homes, or any building or home with off gassing carpets, paints, fumes, as well as buildings with ventilation problems and concentration of vapors, gases, solvents, other airborne agents toxic to the skin, lungs or nervous system. In fact, sick school syndrome is a condition related to poor ventilation in some of America's schools.

Description

People who have SBS generally experience symptoms related to the eyes, nose, throat, and skin. They also may complain of overall symptoms such as feeling very tired. When caused by SBS, these symptoms have no other known cause or explanation. Other similar symptoms are related to SBS and may be confused with the syndrome. For instance, "building-related

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

illness" (BRI) is the term used for a diagnosed illness attributed to contaminants that can be identified in a building. Often, the contaminants come from the ventilation system. Legionnaire's disease is a well-known example of BRI. **Multiple chemical sensitivity** (MCS) is another closely related condition; however, it is not caused by SBS. People with MCS have high sensitivity or allergy to many chemicals and other substances in the environment. They may experience symptoms in many organs and systems of their bodies from low levels of exposure to chemicals.

Like MCS, SBS is largely a modern phenomenon, first recognized by the World Health Organization (WHO) as a medical condition in 1982. When building designers sought to save energy during the 1970s oil embargo, they began creating virtually airtight buildings. However, the new energy-efficient structures reduced ventilation, even to the point of reducing health and comfort for occupants. SBS has resulted in lost productivity among affected workers and increased costs for those who own and operate the buildings with poor air quality and other problems. An entire industry has developed around producing air filters and other products, as well as engineering and design consulting.

Causes and symptoms

People who complain of SBS report symptoms of acute discomfort such as eye, nose, and throat irritation, a dry **cough**, and **dizziness** or **nausea**. Many also report dry, itchy skin. Some will have difficulty concentrating, sensitivity to odors, and **fatigue**, headaches. While many of these symptoms are common to other conditions, their relation to time spent in a specific building suggests the possibility of SBS.

The specific causes of SBS are unknown, but several factors may contribute to the condition. The most notable factor is poor indoor air quality. If air is not properly ventilated, it may become too dry or too humid. Also, chemicals or biological contaminants (molds, pollen, viruses, etc.) may concentrate in the air. The World Health Organization (WHO) estimates that up to 30% of office buildings worldwide have significant indoor air quality problems. A 1995 study found that about one-half of schools in the United States had poor ventilation and sources of pollution inside the buildings.

More than 700,000 chemicals are in common use today. Chemical contaminants can enter indoor air from the outside or from the inside. For example, vehicle exhaust can enter a building through windows or through poorly located air intake vents. However, most chemical contaminants come from indoor sources. Commonly used materials for construction and cleaning emit byproducts that can cause acute health effects in people when concentrated at high levels. Even low or moderate levels of these contaminants can cause health effects in some people with certain sensitivities. Called volatile organic compounds (VOCs), the contaminants come from carpet glues, copy machines, manufactured wood products, cleaning agents, pesticides, and tobacco smoke. Formaldehyde is one of the common VOCs.

Radon, a radioactive **gas** that forms when radium breaks down in certain rock formations, can be found in homes in several states. It enters the home through foundation cracks. Radon is colorless and odorless and can go undetected, building up to dangerous levels that can lead to **lung cancer**.

Biological contaminants can enter a building's ventilation system. They breed in standing water from humidifiers, drain pans, or ducts. They also breed where water has collected on wet ceiling tiles, carpet, or insulation. Some biological compounds are pollen, bacteria, viruses, and molds.

Dust also has been found to contribute to SBS. Dust irritates the mucous membranes. A study showed that improved office cleaning reduced symptoms for at least two months after cleaning.

Diagnosis

Diagnosing SBS differs from diagnosing many other medical conditions. First, the diagnosis is made by patient history, physical and clinical finding. Rarely do laboratory, or imaging tests confirm abnormalities. Second, the diagnosis involves a thorough

KEY TERMS

Formaldehyde—A chemical preservative used in many building materials such as adhesives, furnishings, and manufactured woods (plywood and particle board). It can cause eye, nose, and throat irritation and it has been listed as a cancer-causing agent.

Irradiation—The act of exposing something to ultraviolet rays or x rays.

Mucous membranes—The thin skin layers that line, lubricate and protect body passages and cavities such as the nose.

Volatile organic compounds—Compounds from common sources such as cleaning materials and furnishings that vaporize, or become a gas, at room temperature.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

review of the building and its occupants as much as an individual's symptoms. Finally, the medical community has debated for many years about whether or not SBS is a "real medical condition." Because many of the symptoms are self–reported and can't easily be measured and since some reported cases of sick buildings have shown no signs of chemicals or other problems, some professionals dispute the syndrome exists. In addition, there are people who are more sensitive to low levels of VOCs who may experience symptoms even though other people in the building experience no symptoms.

For these reasons, SBS often remains undiagnosed or misdiagnosed. Schools may blame other diseases such as winter flu outbreaks or perhaps assign a child's symptoms to a condition such as attention deficit hyperactivity disorder. When a patient goes to a physician with symptoms typical of SBS — **headache**, fatigue, dizziness, nausea, runny or stuffy nose, a dry cough, dry and itchy skin, itchy or watery eyes, and difficulty concentrating — a complete history is critical. If no other medical condition can explain these symptoms, the physician needs to ask questions that might lead to SBS. The trigger will come in questions involving time. For instance, if a child's symptoms worsen when he or she enters the school building, SBS is likely to blame. If an office worker didn't start having these symptoms until changing jobs or office locations, the office building could be the culprit.

To diagnose a "sick building," trained occupational health or industrial experts will perform a "walk-through" to survey building occupants for common SBS symptoms and to check the building for signs of problems. If a number of occupants have these symptoms and there are problems in the building such as overcrowding, poor cleaning, poor ventilation, or water damage, the surveyor may recommend work be done to improve the building's indoor air quality.

Treatment

No specific treatment has proven effective at eliminating SBS. Many experts agree that the best treatment for SBS is prevention — removing the contaminants or other identified sources that are causing SBS. Individuals with SBS may be encouraged to avoid the building that is making them sick. However, this is not always possible and can lead to isolation or job loss.

A person with suspected SBS may ask that a building be inspected for possible contaminants. A course of **detoxification** under the guidance of a qualified practitioner can be helpful. This includes stimulating lung, liver, kidney and skin expulsion and release of toxic compounds, some of which are stored in fat tissues. If the affected individual cannot leave the building or if the source is not removed, treating the symptoms of SBS may help ease some discomfort. In this case, it is wise to see an environmental medicine specialist and other providers who can help with detoxification and symptom relief (**acupuncture**, massage, etc.) However, these therapies should be coordinated by a physician, since treating multiple symptoms with multiple remedies may possibly create additional interactions. And even herbal remedies may interact with the various chemical substances that are producing the sensitivities; they should be started in small doses and recommended only by trained practitioners.

Some patients with MCS will test for **allergies** to determine the sources of their sensitivities; similar testing might prove helpful for SBS patients who do not know the exact source of their symptoms. Efforts to relieve **stress** also may help deal with or lessen SBS symptoms. **Aromatherapy**, **yoga**, **biofeedback**, and massage may be helpful.

Allopathic treatment

Again, tests have shown that among those with chemical sensitivities, avoiding chemicals has proven to be the most effective treatment. If the environmental problem is not corrected, the individual must decide how to best avoid the SBS source. Clinicians will aim their treatment at easing patients' symptoms while trying to help them avoid or adapt to triggers. Like many conditions that are difficult to pinpoint, physicians must listen respectfully to patients and should not prematurely label symptoms as psychological. Once SBS is suspected, the building that is likely the source of trouble should be evaluated and improvements made as needed.

Expected results

Avoiding the source of SBS or making necessary environmental improvements to the building should improve most symptoms of SBS in a short time. No permanent complications of SBS are known.

Prevention

Preventing SBS begins with the proper design and maintenance of buildings. In particular, attention should be paid to the heating, ventilation, and air conditioning (HVAC) systems. WHO has set guidelines for proper management of building ventilation

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

systems that include avoiding introduction of biological contaminants as well as conducting regular inspection and maintenance. In late 2003, a medical journal reported that use of ultraviolet light irradiation in cooling coils and drip pans could kill the germs that cause SBS. In addition, designing buildings to minimize introduction of contaminants or inspecting older buildings for possible VOCs and correcting potential problems can prevent SBS in building occupants. Education and communication are essential for effective air quality management in any building.

Resources

PERIODICALS

Anderson, Ashley. "Ultraviolet Light Reduces Sick Building Syndrome." *Supply House Times* (January 2004): 28–29.

Burge, P. S. "Sick Building Syndrome." *Occupational and Environmental Medicine* (February 2004): 185–191.

Henckel, Leslie. "IAQ FYI: Proactive Management Can Help to Clear Buildings of Indoor Air Quality Problems." *Journal of Property Management* (July-August 2003): 48–52.

Sadovsky, Richard. "Assessing Patients with Medically Unknown Symptoms." *American Family Physician* (June 1, 2000): 3455.

Yurkovsky, Savely. "Multiple Chemical Sensitivity...From Treatments to Cure." *Townsend Letter for Doctors and Patients* (January 2001): 58.

ORGANIZATIONS

American Academy of Environmental Medicine. East Kellogg, Suite 625, Wichita, KS 67207. (316) 684-5500. http://www.aaem.com.

American Industrial Hygiene Association. 2700 Prosperity Avenue, Suite 250, Fairfax, VA 22031. (703) 849-8888. http://www.aiha.org.

Environmental Health Center, a Division of the National Safety Council. 1025 Connecticut Avenue, NW, Suite 1200, Washington, DC 20036. (202) 293-2270. http://www.nsc.org.

National Institute for Occupational Safety and Health, US Department of Health and Human Services. 4676 Columbia Parkway (Mail Drop R2), Cincinnati, OH 45226. http://www.cdc.gov/niosh/homepage.html.

OTHER

"Sick School Syndrome." KidsHealth for Parents and Nemours Foundation. 2004. [cited June 5, 2004]. http://www.kidshealth.org.

"Top Ten Tips for a Healthy Home." American Lung Association. 2004. [cited June 5, 2004]. http://www.lungusa.org/.

Teresa G. Odle

Sickle cell anemia

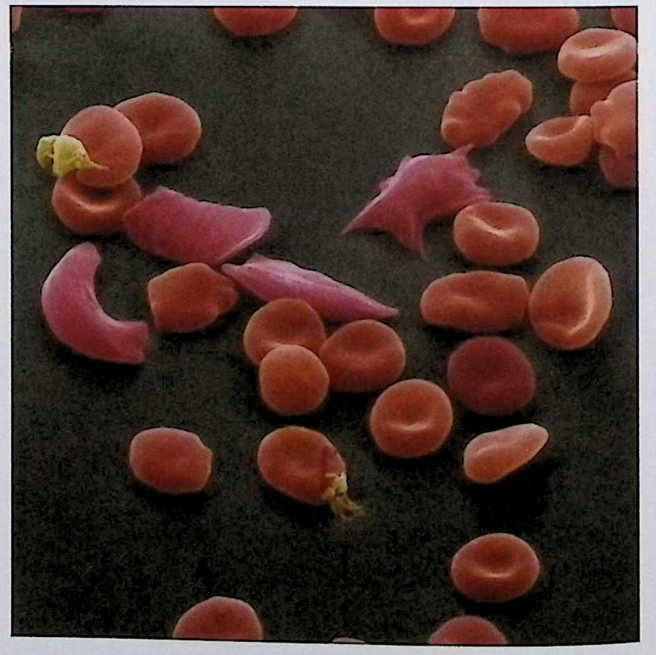
Definition

Sickle cell **anemia**, which is also known as meniscocytosis or sicklemia, is an inherited blood disorder that arises from a gene mutation. As a result, affected hemoglobin molecules have a tendency to stick to one another, forming abnormal strands of hemoglobin within the red blood cells. The cells that contain these strands become stiff and elongated—sickle-shaped.

Because sickle cell anemia is characterized by the rapid loss of red blood cells as they enter the circulation, it is classified as a hemolytic anemia, "hemolytic" referring to the destruction of the cell membrane of red blood cells resulting in the release of hemoglobin.

Description

Sickle-shaped cells die much more rapidly than normal red blood cells and the body cannot create replacements fast enough. Anemia develops due to the chronic shortage of red blood cells. Further complications arise because sickle cells do not fit well through small blood vessels, and can become trapped. The trapped sickle cells form blockages that prevent oxygenated blood from reaching associated tissues and



Sickle cells, crescent-shaped red blood cells that result from a change in the amino acid sequence of the cell's hemoglobin. *(Eye of Science / Photo Researchers, Inc.)*

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

organs. The damaged tissues and organs cause considerable **pain** and can lead to serious complications, including **stroke** and an impaired immune system. Sickle cell anemia primarily affects people with African, Mediterranean, Middle Eastern, and Indian ancestry. In the United States, one in 12 African Americans are carriers. An additional 72,000 Americans have sickle cell anemia, meaning they have inherited the trait from both parents. Among African Americans, approximately one in every 500 babies is diagnosed with sickle cell anemia. Hispanic Americans are also heavily affected; sickle cell anemia occurs in one of every 1,000-1,400 births. Worldwide, it has been estimated that 250,000 children are born each year with sickle cell anemia.

Hemoglobin structure

Normal hemoglobin is composed of a heme molecule and two pairs of proteins called globins. Humans have the genes to create six different types of globins—alpha, beta, gamma, delta, epsilon, and zeta—but do not use all of them at once. The type of genes expressed depends upon the stage of development: embryonic, fetal, or adult. Virtually all of the hemoglobin produced in humans from ages 2-3 months and onward contains a pair of alpha-globin and beta-globin molecules.

Sickle cell hemoglobin

A change, or mutation, in a gene can alter the formation or function of its product. In the case of sickle cell hemoglobin, the gene that carries the blueprint for beta-globin has a tiny alteration that makes it different from the normal gene. This mutation affects a single nucleic acid along the entire DNA strand that makes up the beta-globin gene. (Nucleic acids are the chemicals that make up deoxyribonucleic acid [DNA].) Specifically, the nucleic acid, adenine, is replaced by a different nucleic acid called thymine.

Because of this seemingly slight mutation, called a point mutation, the finished beta-globin molecule has a single amino acid substitution: valine occupies the spot normally taken by glutamic acid. (**Amino acids** are the building blocks of all proteins.) This substitution is incorporated into the beta-globin molecule—and eventually returning in a hemoglobin molecule—that does not function normally.

Normal hemoglobin, referred to as hemoglobin A, transports oxygen from the lungs to tissues throughout the body. In the smallest blood vessels, the hemoglobin exchanges the oxygen for carbon dioxide, which it carries back to the lungs for removal from the body. The defective hemoglobin, designated hemoglobin S, can also transport oxygen. However, once the oxygen is released, hemoglobin S molecules have an abnormal tendency to clump together. Aggregated hemoglobin molecules form strands within red blood cells, which then lose their usual shape and flexibility.

The rate at which hemoglobin S aggregation and cell sickling occur depends on many factors, such as the blood flow rate and the concentration of hemoglobin in the blood cells. If the blood flows at a normal rate, hemoglobin S is reoxygenated in the lungs before it has a chance to aggregate. The concentration of hemoglobin within red blood cells is influenced by an individual's hydration level—that is the amount of water contained in the cells. If a person becomes dehydrated, hemoglobin becomes more concentrated in the red blood cells. In this situation, hemoglobin S has a greater tendency to clump together and induce sickle cell formation.

Sickle cell anemia

Genes are inherited in pairs, one copy from each parent. Therefore, each person has two copies of the gene that makes beta-globin. As long as a person inherits one normal beta-globin gene, the body can produce sufficient quantities of normal beta-globin. A person who inherits a copy each of the normal and abnormal beta-globin genes is referred to as a carrier of the sickle cell trait. Generally, carriers do not have symptoms, but their red blood cells contain some hemoglobin S.

A child who inherits the sickle cell trait from both parents—a 25% possibility if both parents are carriers—will develop sickle cell anemia. These cells have a decreased life span in comparison to normal red blood cells. Normal red blood cells survive for approximately 120 days in the bloodstream; sickle cells last only 10-12 days. As a result, the bloodstream is chronically short of red blood cells and the affected individual develops anemia.

The sickle cells can create other complications. Due to their shape, they do not fit well through small blood vessels. As an aggravating factor, the outside surfaces of sickle cells may have altered chemical properties that increase the cell's "stickiness." These sticky sickle cells are more likely to adhere to the inside surfaces of small blood vessels, as well as to other blood cells. As a result of the sickle cells' shape and stickiness, blockages occasionally form in small blood vessels. Such blockages prevent oxygenated blood from reaching areas where it is needed, causing extreme pain, as well as organ and tissue damage.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Amino acid—A type of molecule used as a building block for protein construction.

Anemia—A condition in which the level of hemoglobin falls below normal values due to a shortage of mature red blood cells. Common symptoms include paleness, fatigue, and shortness of breath.

Bilirubin—A yellow pigment that is the end result of hemoglobin degradation. Bilirubin is cleared from the blood by action of liver enzymes and excreted from the body.

Bone marrow—A spongy tissue located in the hollow centers of certain bones, such as the skull and hip bones. Bone marrow is the site of blood cell generation.

Bone marrow transplantation—A medical procedure in which normal bone marrow is transferred from a healthy donor to an ailing recipient. An illness that prevents production of normal blood cells—such as sickle cell anemia—may be treated with a bone marrow transplant.

Gel electrophoresis—A laboratory test that separates molecules based on their size, shape, or electrical charge.

Globin—One of the component protein molecules found in hemoglobin. Normal adult hemoglobin has a pair each of alpha-globin and beta-globin molecules.

Heme—The iron-containing molecule in hemoglobin that serves as the site for oxygen binding.

Hemoglobin—The red pigment found within red blood cells that enables them to transport oxygen throughout the body. Hemoglobin is a large molecule composed of five component molecules: a heme molecule and two pairs of globin molecules.

Hemoglobin A—Normal adult hemoglobin which contains a heme molecule, two alpha-globin molecules, and two beta-globin molecules.

Hemoglobin S—Hemoglobin that is produced in association with the sickle cell trait; the beta-globin molecules of hemoglobin S are defective.

Hemolytic—Referring to the destruction of the cell membranes of red blood cells, resulting in the release of hemoglobin from the damaged cell.

Jaundice—A condition characterized by higher-than-normal levels of bilirubin in the bloodstream and an accompanying yellowing of the skin and eyes.

Meniscocytosis—Another word for sickle cell disease.

Mutation—A change in a gene's DNA. Whether a mutation is harmful is determined by the effect on the product for which the gene codes.

Nucleic acid—A type of chemical that is used as a component for building DNA. The nucleic acids found in DNA are adenine, thymine, guanine, and cytosine.

Red blood cell—Hemoglobin-containing blood cells that transport oxygen from the lungs to tissues. In the tissues, the red blood cells exchange their oxygen for carbon dioxide, which is brought back to the lungs to be exhaled.

The severity of the symptoms cannot be predicted based solely on the genetic inheritance. Some individuals with sickle cell anemia develop health- or life-threatening problems in infancy, but others may have only mild symptoms throughout their lives. For example, genetic factors, such as the continued production of fetal hemoglobin after birth, can modify the course of the disease. Fetal hemoglobin contains gamma-globin in place of beta-globin; if enough of it is produced, the potential interactions between hemoglobin S molecules are reduced.

Affected populations

Worldwide, millions of people carry the sickle cell trait. Individuals whose ancestors lived in sub-Saharan Africa, the Middle East, India, or the Mediterranean region are the most likely to have the trait. The areas of the world associated with the sickle cell trait are also strongly affected by **malaria**, a disease caused by blood-borne parasites transmitted through mosquito **bites**. According to a widely accepted theory, the genetic mutation associated with the sickle cell trait occurred thousands of years ago. Coincidentally, this mutation increased the likelihood that carriers would survive malaria outbreaks. Survivors then passed the mutation on to their offspring, and the trait became established throughout areas where malaria was common.

Causes and symptoms

Symptoms typically appear during the first year or two of life. However, some individuals do not develop

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

symptoms until adulthood and may not be aware that they have the genetic inheritance for sickle cell anemia.

Anemia

Sickle cells have a high turnover rate, and there is an ongoing deficit of red blood cells in the bloodstream. Common symptoms of anemia include **fatigue**, paleness, and shortness of breath. A particularly severe form of anemia—aplastic anemia—occurs following infection with parvovirus. Though temporary, parvovirus causes extensive destruction of the bone marrow, bringing production of new red blood cells to a halt. Bone marrow production resumes after 7–10 days, but given the short lives of sickle cells, even a brief shut-down in red blood cell production can cause a major decline in hemoglobin concentrations. This is called "aplastic crisis."

Painful crises

Painful crises, also known as vaso-occlusive crises, are a primary symptom of sickle cell anemia in children and adults. The pain may be caused by small blood vessel blockages that prevent oxygen from reaching tissues. An alternate explanation, particularly with regard to bone pain, is that blood is shunted away from the bone marrow but through some other mechanism than blockage by sickle cells.

These crises are unpredictable, and can affect any area of the body, although the chest, abdomen, and bones are frequently affected sites. There is some evidence that cold temperatures or infection can trigger a painful crisis, but most crises occur for unknown reasons. The frequency and duration of the pain can vary tremendously. Crises may be separated by more than a year or possibly only by weeks, and they can last from hours to weeks.

The hand-foot syndrome is a particular type of painful crisis, and is often the first sign of sickle cell anemia in an infant. Common symptoms include pain and swelling in the hands and feet, possibly accompanied by a **fever**. Hand-foot syndrome typically occurs only during the first four years of life, with the greatest incidence at one year.

Enlarged spleen and infections

Sickle cells can impede blood flow through the spleen and cause organ damage. In infants and young children, the spleen is usually enlarged. After repeated incidence of blood vessel blockage, the spleen usually atrophies by late childhood. Damage to the spleen can have a negative impact on the immune system, leaving individuals with sickle cell anemia more vulnerable to **infections**. Infants and young children are particularly prone to life-threatening infections.

Anemia can also impair the immune system, because stem cells—the precursors of all blood cells—are earmarked for red blood cell production rather than white blood cell production. White blood cells form the cornerstone of the immune system within the bloodstream.

Delayed growth

The energy demands of the bone marrow for red blood cell production compete with the demands of a growing body. Children with sickle cell anemia have delayed growth and reach puberty at a later age than normal. By early adulthood, they catch up on growth and attain normal height, but weight typically remains below average.

Stroke

Blockage of blood vessels in the brain can have particularly harsh consequences and can be fatal. When areas of the brain are deprived of oxygen, control of the associated functions may be lost. Sometimes this loss is permanent. Common stroke symptoms include weakness or numbness that affects one side of the body, sudden loss of vision, confusion, loss of speech or the ability to understand spoken words, and **dizziness**. Children between the ages of 1 and 15 have a 30% risk of suffering a stroke. Approximately two-thirds of the children who have a stroke will have at least one more; those who survive typically suffer severe learning disabilities. As of 2003, researchers are investigating various techniques for helping children with **memory loss** related to strokes caused by sickle cell disease.

Acute chest syndrome

Acute chest syndrome can occur at any age, and is caused by sickle cells blocking the small blood vessels of the lungs. This blockage is complicated by accompanying problems such as infection and pooling of blood in the lungs. Affected persons experience fever, **cough**, chest pain, and shortness of breath. Recurrent attacks can lead to permanent lung damage.

Other problems

Males with sickle cell anemia may experience a condition called priapism. (Priapism is characterized by a persistent and painful erection of the penis.) Due to blood vessel blockage by sickle cells, blood is trapped in the tissue of the penis. Damage to this tissue can result in permanent **impotence** in adults.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Both genders may experience kidney damage. The environment of the kidney is particularly conducive to sickle cell formation; even otherwise asymptomatic carriers may experience some level of kidney damage. Kidney damage is indicated by blood in the urine, incontinence, and enlarged kidneys.

Jaundice and an enlarged liver are also commonly associated with sickle cell anemia. Jaundice, indicated by a yellow tone in the skin and eyes, may occur if bilirubin levels increase. Bilirubin is the final product of hemoglobin degradation, and is typically removed from the bloodstream by the liver. Bilirubin levels often increase with high levels of red blood cell destruction, but jaundice can also be a sign of a poorly functioning liver.

Some individuals with sickle cell anemia may experience vision problems. The blood vessels that feed into the retina—the tissue at the back of the eyeball—may be blocked by sickle cells. New blood vessels can form around the blockages, but these vessels are typically weak or otherwise defective. Bleeding, scarring, and **retinal detachment** may eventually lead to blindness.

Diagnosis

Sickle cell anemia is suspected based on an individual's ethnic or racial background, and on the symptoms of anemia. A blood count reveals the anemia, and a sickle cell test reveals the presence of the sickle cell trait.

To confirm a diagnosis of the sickle cell trait or sickle cell anemia, another laboratory test called gel electrophoresis is performed. This test uses an electric field applied across a slab of gel-like material to separate protein molecules based on their size, shape, or electrical charge. Although hemoglobin S (sickle) and hemoglobin A (normal) differ by only one amino acid, they can be clearly separated using gel electrophoresis. If both types of hemoglobin are identified, the individual is a carrier of the sickle cell trait; if only hemoglobin S is present, the person most likely has sickle cell anemia.

The gel electrophoresis test is also used as a screening method for identifying the sickle cell trait in newborns. More than 40 states screen newborns in order to identify carriers and individuals who have inherited the trait from both parents.

Treatment

In general, treatment of sickle cell anemia relies on conventional medicine. However, alternative therapies may be useful in pain control.

Massage

The daily pain caused by sickle cell disease has been shown to be managed by massage. A pilot study whose results were published in 1999 indicated that those who received massage reported less perception of pain than those who were part of a **relaxation** control group during the research. Massage is recommended as a complementary treatment in the management of the chronic disease.

Pain diaries

A 2001 study revealed that diaries kept by children and adolescents could help the patients and their families better manage sickle cell pain from home. If children (of reading and writing age) can record pain episodes, they have better recall and provide improved documentation for physicians and parents so they can relate pain episodes to possible causes.

Acupuncture

Acupuncture may relieve some of the pain caused by sickle cell disease. For longer-lasting results, acupuncturists indicate that the treatment works with the body's subtle energies by manipulating the "chi" to remove blockages and allow the body to heal itself. Acupuncture uses extremely thin needles that are inserted into various areas of the body, with placement depending on the patient's condition, and each treatment usually takes 20-45 minutes.

Diet

While the pain of sickle cell disease ranges from acute to chronic, simple alterations to the diet are one way to help those who endure the illness. Foods like horseradish, cassava, yams, corn, bamboo shoots, sweet potatoes, and lima beans contain cyanogenic glucosides, or natural plant compounds that are recommended additions to the diet. These natural plant compounds interact with bacteria in the large intestine and aid the body in producing a type of hemoglobin that can effectively carry oxygen through blood cells—possibly leading to less pain.

Allopathic treatment

Early identification of sickle cell anemia can prevent many problems. The highest death rates occur during the first year of life due to infection, aplastic anemia, and acute chest syndrome. If anticipated, steps can be taken to avert these crises. With regard to long-term treatment, prevention of complications remains a main goal. Sickle cell anemia cannot be cured—other

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

than through a risky bone marrow transplant—but treatments are available for symptoms.

Pain management

Pain is one of the primary symptoms of sickle cell anemia, and controlling it is an important concern. The methods necessary for pain control are based on individual factors. Some people can gain adequate pain control through over-the-counter oral painkillers (analgesics), local application of heat, and rest. Others need stronger methods, which can include administration of narcotics.

Blood transfusions

Blood transfusions are usually not given on a regular basis but are used to treat painful crises, severe anemia, and other emergencies. In some cases, such as treating spleen enlargement or preventing stroke from recurring, blood transfusions are given as a preventative measure. Regular blood transfusions have the potential to decrease formation of hemoglobin S, and reduce associated symptoms.

Drugs

Infants are typically started on a course of penicillin that extends from infancy to age six. This treatment is meant to ward off potentially fatal infections. Infections at any age are treated aggressively with antibiotics. Vaccines for common infections, such as pneumococcal **pneumonia**, are administered when possible.

Emphasis is being placed on developing drugs that treat sickle cell anemia directly. The most promising of these drugs in the late 1990s is hydroxyurea, a drug that was originally designed for anticancer treatment. Hydroxyurea has been shown to reduce the frequency of painful crises and acute chest syndrome in adults, and to lessen the need for blood transfusions. Hydroxyurea seems to work by inducing a higher production of fetal hemoglobin. The major side effects of the drug include decreased production of platelets, red blood cells, and certain white blood cells. The effects of long-term hydroxyurea treatment are unknown; however, a nine-year follow-up study of 299 adults with frequent painful crises reported in 2003 that taking hydroxyurea was associated with a 40% reduction in mortality.

Bone marrow transplantation

Bone marrow transplantation has been shown to cure sickle cell anemia in severely affected children. Indications for a bone marrow transplant are stroke, recurrent acute chest syndrome, and chronic unrelieved pain. Bone marrow transplants tend to be the most successful in children; adults have a higher rate of transplant rejection and other complications.

Gene research

Replacing the gene that produces the defective hemoglobin in sickle cell disease patients with one that makes normal hemoglobin may be a possible treatment due to recent research. According to a 1998 report in *Science*, researchers studied the blood cells from people who carry the sickle cell gene. By using an enzyme called a ribosome, the study was able to alter sickle cells into normal cells. The ribosome cut out the mutated instructions in the cells' genetic pattern and replaced them with the correct instructions. Researchers hope that this will allow the cells to make normal hemoglobin— leading to the ultimate treatment for those with sickle cell disease.

In late 2001, genetic scientists reported that they had designed a gene that might lead to a future treatment of sickle cell anemia. Although the gene had not tested in humans, early results showed that the injected gene protected cells from sickling. As of 2003, experiments in gene therapy for sickle cell disease have been carried out in mice, using lentiviral vectors to transfer the corrective gene into the mouse's stem cells. This technique, however, has not yet been attempted in human subjects as of late 2003.

Expected results

Several factors aside from genetic inheritance determine the prognosis for affected individuals. Therefore, predicting the course of the disorder based solely on genes is not possible. In general, given proper medical care, persons with sickle cell anemia are in fairly good health most of the time. The life expectancy for these individuals has steadily increased over the last 30 years, and many are now surviving past the age of 50. In the United States, the average life expectancy for men with sickle cell anemia is 42 years; for women, it is 48 years. The most common causes of death are infections, lung disease, the blocking of a blood vessel supplying a vital organ, and kidney failure. Pregnant women with sickle cell disease are particularly vulnerable to infection, most often pneumonia or urinary tract infections.

Prevention

The sickle cell trait is a genetically linked, inherited condition. Inheritance cannot be prevented, but it may be predicted. Screening is recommended for individuals in high-risk populations; in the United States, African Americans, and Hispanic Americans have the highest risk of being carriers.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Screening at birth offers the opportunity for early intervention; more than 40 states include sickle cell screening as part of the usual battery of blood tests done for newborns. Pregnant women and couples planning to have children may also wish to be screened to determine their carrier status. Carriers have a 50% chance of passing the trait to their offspring. Children born to two carriers have a 25% chance of inheriting the trait from both parents and having sickle cell anemia. Carriers may consider genetic counseling to assess any risks to their offspring. The sickle cell trait can also be identified through prenatal testing, specifically through use of amniotic fluid testing or chorionic villus sampling.

By maintaining a good diet, staying well hydrated with plenty of fluids, exercising regularly, and getting enough sleep, those with sickle cell disease may help their bodies remain strong and ward off fatigue and dehydration.

Resources

BOOKS

"Anemias Caused by Excessive Hemolysis: Sickle Cell Diseases." Section 11, Chapter 127 in *The Merck Manual of Diagnosis and Therapy*, edited by Mark H. Beers, MD, and Robert Berkow, MD. Whitehouse Station, NJ: Merck Research Laboratories, 2002.

Beutler, Ernest. *The Sickle Cell Diseases and Related Disorders*. Williams Hematology, edited by Ernest Beutler, et al. 5th ed. New York: McGraw-Hill,1995.

Bloom, Miriam. *Understanding Sickle Cell Disease*. Jackson, MS: University Press of Mississippi, 1995.

The Editors of Time-Life Books. *Sickle Cell Anemia*. The Medical Advisor: The Complete Guide to Alternative & Conventional Treatments, Richmond, VA: Time-Life Inc., 1996.

Embury, Stephen H., et al., eds. *Sickle Cell Disease: Basic Principles and Clinical Practice*. New York: Raven Press, 1994.

"Pregnancy Complicated by Disease: Hemoglobinopathies." Section 18, Chapter 251 in *The Merck Manual of Diagnosis and Therapy*, edited by Mark H. Beers, MD, and Robert Berkow, MD. Whitehouse Station, NJ: Merck Research Laboratories, 2002.

PERIODICALS

Davies, S. C., and A. Gilmore. "The Role of Hydroxyurea in the Management of Sickle Cell Disease." *Blood Reviews* 17 (June 2003): 99–109.

Egbert Maikler, Virginia, et al."Children's and Adolescents' Use of Diaries for Sickle Cell Pain." *Journal of the Society of Pediatric Nurses* 6. no. 4 (October – December 2001): 161 – 169.

Harris, Leslie. "Living Well with Sickle Cell." *Essence* (September 1999): 58.

Mayo Foundation for Medical Education and Research. http://www.mayohealth.org.

Nienhuis,A. W., H. Hanawa, N. Sawai, et al. "Development of Gene Therapy for Hemoglobin Disorders." *Annals of the New York Academy of Science* 996 (May 2003): 101–111.

Seppa, N. "Gene Therapy for Sickle-cell Disease?." *Science News* 160, no. 24 (December 15, 2001): 372.

"Sickle Cell Pain Relieved by Massage." *Massage Magazine* (June 30, 1999): 52.

Steinberg, M. H., F. Barton, O. Castro, et al. "Effect of Hydroxyurea on Mortality and Morbidity in Adult Sickle Cell Anemia: Risks and Benefits up to 9 Years of Treatment." *Journal of the American Medical Association* 289 (April 2, 2003): 1645–1651.

Winrow, N., and E. R. Melhem. "Sickle Cell Disease and Stroke in a Pediatric Population. Evidence-Based Diagnostic Evaluation." *Neuroimaging Clinics of North America* 13 (May 2003): 185–196.

Yerys, B. E., D. A. White, C. F. Salorio, et al. "Memory Strategy Training in Children with Cerebral Infarcts Related to Sickle Cell Disease." *Journal of Pediatric Hematology and Oncology* 25 (June 2003): 495–498.

ORGANIZATIONS

Sickle Cell Disease Association of America. 200 Corporate Point, Suite 495, Culver City, CA 90230-7633.(310) 216-6363. (800) 421-8453. http://sicklecelldisease.org/.

Sickle Cell Disease Program, Division of Blood Diseases and Resources. National Heart, Lung, and Blood Institute. II Rockledge Centre, 6701 Rockledge Dr. MSC 7950, Bethesda, MD 20892-7950. (301) 435-0055.

Beth Kapes
Teresa Norris
Rebecca J. Frey, PhD

Silica

Description

Silica, sometimes called silicea terra or abbreviated as sil., is a homeopathic remedy. Silica is a mineral and is prepared from silicon dioxide found in flint, quartz, sandstone, and many other common rocks.

General use

Homeopathic medicine operates on the principle that like heals like, which means that a disease can be cured by treating it with products that produce the same symptoms as the disease. These products follow another homeopathic law, the law of infinitesimals. In opposition to traditional medicine, the law of infinitesimals states that the *lower* a dose of curative, the more effective it is. To achieve a very low dose, the curative is

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Silica gel. *(© Pablo Paul / Alamy)*

diluted many, many times until only a tiny amount remains in a huge amount of the diluting liquid.

In homeopathic terms, remedies are proved by experimentation and reports made by famous homeopathic practitioners. Silica was proved as a remedy by the German founder of **homeopathy**, Dr. Samuel Hahnemann (1775–1843).

In homeopathy, silica is often used to treat symptoms of chronic diseases where there is general weakness and a lack of either physical or emotional strength. The rocks silica comes from are hard and compact. Silica is used to strengthen many parts of the body and impart to them silica's hard, dense, strong characteristics.

Silica is used to treat conditions associated with frequent and recurrent illnesses that occur because of a weakened immune system. These include frequent colds, flu, and chronic ear **infections** (especially those with a thick, yellow discharge or fluid in the middle ear).

Silica is also useful in expelling material from the body. It is used to remove splinters, bits of embedded glass, and other foreign irritants. It also aids in the elimination of stools from the rectum.

Certain skin and bone complaints can also be treated with silica. These include **fractures** that are slow to heal, rough or peeling lips, **acne**, weak nails, and ingrown toenails. Other ailments for which silica is considered an appropriate homeopathic remedy are migraines that begin in the back of the head and extend to the eyes, heavy sweating around the head and neck, **mumps**, dental abscesses, vaginal cysts, mastitis in breast-feeding women, and general low stamina.

One diagnostic tool in homeopathy is to observe when symptoms improve or worsen as a clue to which remedy to use.

Symptoms benefiting from silica worsen:

- in cold damp weather
- in the morning
- after getting feet wet
- at the time of the new moon
- if sweating is suppressed
- from washing or swimming
- from lying on the left side

Symptoms improve:

- in hot, humid weather
- with warmth
- with wrapping the head

Homeopathy also ascribes certain personality types to certain remedies. The silica personality is said to be chronically exhausted and lacking in stamina. These people are happy to sit and take no action. The silica personality type feels cold intensely. These people are often intellectually bright but lack confidence. They obsess about small details to the point of exhaustion because they fear failure and being hurt. They tend to be shy and have good manners, but are also willful to the point of resenting any outside interference.

Preparations

In preparing homeopathic remedies, the remedy material is finely ground then prepared by extensive dilutions. In the early days of homeopathy, silica was prepared from powdered rock. In the 2000s, most silica is manufactured chemically.

There are two homeopathic dilution scales: the decimal (x) scale with a dilution of 1:10 and the centesimal (c) scale with a dilution of 1:100. Once the mixture is diluted, shaken, strained, then rediluted many times to reach the desired degree of potency, the final mixture is added to lactose (a type of sugar) tablets or pellets. These are then stored away from light. Silica is available commercially in tablets in many different strengths. Dosage depends on the symptoms being treated.

Homeopathic and orthodox medical practitioners agree that by the time the initial remedy solution is diluted to strengths used in homeopathic healing, it is likely that very few molecules of the original remedy remain. Homeopaths, however, believe that these remedies continue to work through an effect called

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Mastitis—Inflammation of the breast.

potentization that has not yet been explained by mainstream scientists.

Precautions

Homeopaths recommend that anyone with implants or artificial body components avoid silica because of its tendency to cause foreign materials to be expelled from the body.

Side effects

When taken in the recommended dilute form, no side effects have been reported.

Interactions

Studies on interactions between silica and conventional pharmaceuticals had not been found as of 2008.

Resources

BOOKS

Feingold, Ellen. *The Complete Self-Care Guide to Homeopathy, Herbal Remedies, & Nutritional Supplements.* Albany, NY: Whitston, 2008.

Hayfield, Robyn. *Simple Homeopathy: An Easy-to-follow Guide to Using Homeopathic Remedies to Heal Common Ailments, with Expert Safe Advice and 100 Colour Photographs.* London: Southwater, 2008.

ORGANIZATIONS

American Institute of Homeopathy, 801 N. Fairfax St., Suite 306, Alexandria, VA, 22314, (888) 445-9988, http://www.homeopathyusa.org/.

Tish Davidson
David Edward Newton, Ed.D.

Silymarin *see* **Milk thistle**

Sinus infection

Definition

Sinusitis, or sinus infection, refers to an inflammation of the sinuses, the airspaces within the bones of the face, due to an infection within these spaces.

Description

The sinuses are paired air pockets located within the bones of the face. They are:

- The frontal sinuses. Located above the eyes, in the center region of each eyebrow.
- The maxillary sinuses. Located within the cheekbones, just to either side of the nose.
- The ethmoid sinuses. Located between the eyes, just behind the bridge of the nose.
- The sphenoid sinuses. Located just behind the ethmoid sinuses, and behind the eyes.

The sinuses are connected with the nose. They are lined with the same kind of skin found elsewhere within the respiratory tract. This skin has tiny little hairs projecting from it, called cilia. The cilia beat constantly, to help move the mucus produced in the sinuses into the respiratory tract. The action sweeps mucus along the respiratory tract and helps to clear the tract of debris or any organisms which may be present. When the lining of the sinuses swells, the swelling interferes with the normal flow of mucus. Trapped mucus can then fill the sinuses, causing an uncomfortable sensation of pressure and providing an excellent environment for the growth of infection-causing bacteria.

Causes and symptoms

Although swelling from **allergies** can mimic the symptoms of pressure, **pain**, and congestion, allergies can set the stage for a bacterial infection. Bacteria are the most common cause of sinus infection, however, recent research has suggested that fungi is the most common cause. *Streptococcus pneumoniae* causes about 33% of all cases, while *Haemophilus influenzae* causes about 25% of all cases. Twenty percent of sinus **infections** in children may be caused by *Moraxella catarrhalis*. In people with weakened immune systems (including patients with diabetes; acquired immunodeficiency syndrome or **AIDS**; and patients who are taking medications that lower their immune resistance, such as **cancer** and transplant patients), sinus infections may be caused by fungi such as *Aspergillus*, *Candida*, or Mucorales. Additionally, those repeatedly on antibiotics may be predisposed to sinus infections.

Acute sinus infections usually follow some type of upper respiratory tract infection or cold. Instead of ending, the cold seems to linger, with constant or even worsening congestion. Drainage from the nose often changes from a clear color to a thicker, yellowish-green. There may be **fever**. **Headache** and pain over the affected sinuses may occur, as well as a feeling of pressure which may worsen when the patient bends

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Cilia—Tiny, hair-like projections from a cell. Within the respiratory tract, the cilia act to move mucus along, in an effort to continually flush out and clean the respiratory tract.

over. There may be pain in the jaw or teeth. Some children, in particular, get upset stomachs from the infected drainage going down the back of their throats, and into their stomachs. Some patients develop a **cough**. In recent years, however, physicians have cautioned patients not to assume that the colored mucus or pain automatically means a bacterial infection. It may be of viral origin, and patients can avoid overusing antibiotics with proper diagnosis.

Diagnosis

Medical practitioners have differing levels of trust of certain basic examinations commonly conducted in the office. For example, tapping over the sinuses may cause pain in patients with sinus infection, but it may not. A procedure called sinus transillumination may, or may not, also be helpful. Using a flashlight pressed up against the skin of the cheek, the practitioner will look in the patient's open mouth. When the sinuses are full of air (under normal conditions), the light will project through the sinus, and will be visible on the roof of the mouth as a lit-up, reddened area. When the sinuses are full of mucus, the light will be stopped. While this simple test can be helpful, it is certainly not a completely reliable way to diagnose or rule out the diagnosis of a sinus infection.

X-ray pictures and CT scans of the sinuses are helpful for both acute and chronic sinus infections. Those experiencing chronic sinus infections may need a procedure with a scope to see if any kind of anatomic obstruction is causing their illness. For example, the septum (the cartilage that separates the two nasal cavities from each other) may be slightly displaced, called a deviated septum. This can result in chronic obstruction, setting the person up for the recurrent development of infection.

Treatment

A 2001 telephone survey in northern California revealed that use of alternative treatments for rhinosinusitis and **asthma** is common in the population, with 52% reporting use of alternative treatment in the past 12 months to teat breathing or nasal symptoms. Of these, most used herbal treatments, primarily ephedra-containing products.

Chronic sinus inflammation often is associated with food allergies. An elimination/challenge diet is recommended to identify and eliminate allergenic foods. Irrigating the sinuses with a salt water solution is often recommended for sinusitis and allergies, in order to clear the nasal passages of mucus. Another solution for nasal lavage, or washing, utilizes powdered **goldenseal** (*Hydrastis canadensis*) added to the salt water solution. Other herbal treatments, taken internally, include a mixture made of **eyebright** (*Euphrasia officinalis*), goldenseal, **yarrow** (*Achillea millefolium*), horseradish, and **ephedra** (*Ephedra sinica*), or, when infection is present, a mixture made of **echinacea** (*Echinacea*), wild indigo, and poke root (*Phytolacca decandra-Americana*).

Homeopathic practitioners find a number of remedies useful for treating sinusitis. Among those they recommend are: **Arsenicum album**, Kalium bichromium, Nux vomica, Mercurius iodatus, and **silica**. Andrographic paniculata, commonly known as Kalmegh, is recommended for fighting winter infections and sinus infection. It is usually combines with Echinacea.

Acupuncture has been used to treat sinus inflammation, as have a variety of dietary supplements, including vitamins A, C, and E, and the mineral **zinc**. Contrast **hydrotherapy** (hot and cold compresses, alternating 3 minutes hot, 30 seconds cold, repeated 3 times always ending with cold) applied directly over the sinuses can relieve pressure and enhance healing. A direct inhalation of an essential oil solution using a combination of two cups of water and two drops of a mixture of **thyme**, **rosemary**, or **lavenderessential oils** can help open the sinuses and kill bacteria that cause infection.

Allopathic treatment

Antibiotic medications are often used to treat acute sinus infection, once it has been diagnosed as a bacterial infection. Suitable antibiotics include sulfa drugs, amoxicillin, and a variety of cephalosporins. These medications are usually given for about two weeks, but may be given for even longer periods of time. A 2001 study found that the type of antibiotic used for mild to moderate sinus infection did not seem to matter. In other words, any one of about 16 antibiotics stopped the infection, so cost could help physicians determine the best therapy. Also, the study suggests that physicians might sometimes delay antibiotics in patients with milder symptoms and prescribe them only when moderately severe symptoms last seven days or more or severe symptoms occur.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Decongestants, or the short-term use of decongestant nose sprays, can be useful. Acetaminophen and ibuprofen can decrease the associated pain and headache. Also, running a humidifier can prevent mucus within the nasal passages from uncomfortably drying out, and can help soothe an accompanying **sore throat** or cough.

Chronic sinus infections are often treated initially with antibiotics. Steroid nasal sprays may be used to decrease swelling in the nasal passages. If an anatomic reason is found for chronic infections, it may require corrective surgery. If a surgical procedure is necessary, samples are usually taken at the same time to allow identification of any organisms present which may be causing infection.

Fungal sinus infection may require surgery to clean out the sinuses. Then, a relatively long course of a very strong antifungal medication called amphotericin B is given intravenously through a needle in the vein. This type of infection also can be treated with **botanical medicine**.

Expected results

Prognosis for sinus infections is usually excellent, although some individuals may find that they are particularly prone to contracting such infections after a cold. Fungal sinus infection, however, has a relatively high death rate.

Prevention

Prevention involves the usual standards of good hygiene to cut down on the number of colds an individual catches. Avoiding exposure to cigarette smoke, identifying and treating allergies, and avoiding deep dives into swimming pools or other aquatic areas may help prevent sinus infections. Prevention may include avoiding dairy products and/or wheat products. During the winter, it is a good idea to use a humidifier, as dry nasal passages may crack, allowing bacteria to enter. When allergies are diagnosed, a number of nasal sprays are available to try to prevent inflammation within the nasal passageways, thus allowing the normal flow of mucus. A 2003 report from Sweden recommended regular humming. It appears that when people hum, they exhale about 15 times more air and potentially harmful microbes from nasal passages.

Resources

BOOKS

Durand, Marlene, et al. *Infections of the Upper Respiratory Tract*. Harrison's Principles of Internal Medicine, 14th ed., edited by Anthony S. Fauci, et al. New York: McGraw-Hill, 1998.

Ray, C. George. "Eye, Ear, and Sinus Infections." In *Sherris Medical Microbiology: An Introduction to Infectious Diseases*, edited by Kenneth J. Ryan. Norwalk, CT: Appleton and Lange, 1994.

Stoffman, Phyllis. *The Family Guide to Preventing and Treating 100 Infectious Diseases*. New York: John Wiley and Sons, 1995.

PERIODICALS

Blanc, Paul D., et al. "Alternative Therapies Among Adults with a Reported Diagnosis of Asthma or Rhinosinusitis: Data from a Population-Based Survey." *Chest* (November 2001): 1461.

Bone, Kerry. "Andrographis for Colds and Sinus Infection." *Townsend Letter for Doctors and Patients* (January 2003):36–44.

Kaliner, Michael A. "The Signs of Sinusitis." *Discover* 19 (March 1998): S16+.

O'Brien, Katherine L., et al. "Acute Sinusitis: Principles of Judicious Use of Antimicrobial Agents." *Pediatrics* 101 (January 1998): 174+.

Piccirillo, Jay F., et al. "Impact of First-Line vs. Second-Line Antibiotics for the Treatment of Acute Uncomplicated Sinusitis." *JAMA, The Journal of the American Medical Association* (October 17, 2001): 1849.

"Save Your Schnozz: Hum a Few Bars." *Bicycling* (November 2002):24.

"Sinus Infection Detection." *Harvard Health Letter* (December 2003):

William, J.W., et al. "Clinical Evaluation for Sinusitis: Making the Diagnosis by History and Physical Examination." *Annals of Internal Medicine* 117 (1992): 705+.

ORGANIZATION

American Academy of Otolaryngology-Head and Neck Surgery, Inc. 1 Prince Street, Alexandria, VA 22314–3357. (703) 836–4444.

Kathleen D. Wright
Teresa G. Odle

Sinusitis *see* **Sinus infection**

Sjögren's syndrome

Definition

Sjögren's syndrome is an autoimmune disorder in which the mouth and eyes become extremely dry. Sjögren's syndrome is often associated with other autoimmune disorders.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Description

Like other autoimmune disorders, Sjögren's syndrome occurs when the body's immune system mistakenly considers parts of the body as foreign invaders. People with this disease have abnormal proteins in their blood, suggesting that their immune system is reacting against their own tissue. While the immune cells should attack and kill invaders like bacteria, viruses, and fungi, these cells should not attack the body itself. In autoimmune disorders, however, cells called antibodies see tissues of the body as foreign, and help to start a chain of events that results in damage and destruction of those tissues.

There are three types of Sjögren's syndrome. Primary Sjögren's syndrome occurs by itself, with no other associated disorders. Secondary Sjögren's syndrome occurs along with other autoimmune disorders, like **systemic lupus erythematosusrheumatoid arthritis**, scleroderma, vasculitis, or polymyositis. When the disorder is limited to involvement of the eyes, with no other organ or tissue involvement evident, it is called sicca complex.

Women are about 10 times more likely to suffer from Sjögren's syndrome than are men. It affects all age groups, although most patients are diagnosed when they are between 45 and 55 years old. Sjögren's syndrome is commonly associated with other autoimmune disorders. In fact, 30% of patients with certain autoimmune disorders will also have Sjögren's syndrome.

Causes and symptoms

The cause of Sjögren's syndrome has not been clearly defined, but several causes are suspected. For instance, genetic factors play a role, in that the syndrome sometimes runs in families. In fact, autoimmune diseases in general tend to occur in families with certain genetic characteristics. In late 2001, researchers announced discovery of the genetic markers that predict increased risk of many autoimmune disorders like rheumatoid arthritis, **multiple sclerosis** and lupus.

Other potential causes include hormonal factors (since there are more women than men with the disease) and viral factors. The viral theory suggests that the immune system is activated in response to a viral invader, but then fails to turn itself off. Some other immune malfunction then causes the overly active immune system to begin attacking the body's own tissues. Sjögren's syndrome is thought to be a result of several factors including genetic, immunologic, hormonal, and possibly infectious.

KEY TERMS

Autoimmune disorder—A disorder in which the body's immune cells mistake the body's own tissues as foreign invaders; the immune cells then work to destroy tissues in the body.

Cornea—A transparent structure of the eye over the iris and pupil; light must pass through the cornea to make vision possible.

Immune system—The complex network of organs and blood cells that protect the body from foreign invaders, like bacteria, viruses, and fungi.

The main problem in Sjögren's syndrome is dryness. The salivary glands and secretory glands (mucous/liquid) are often attacked and slowly destroyed, leaving the mouth extremely dry and sticky feeling. Swallowing and talking become difficult. Normally, the saliva washes the teeth clean. Saliva cannot perform this function in Sjögren's syndrome, so the teeth develop many cavities and decay quickly. The parotid glands produce the majority of the mouth's saliva. These glands are located over the jaw bones, behind the area of the cheeks and in front of the ears, and may become significantly enlarged in Sjögren's syndrome.

The eyes also become extremely dry as the tear glands (called lacrimal glands) are slowly destroyed. Eye symptoms include **itching**, burning, redness, increased sensitivity to light, and thick secretions gathering at the eye corners closest to the nose. The cornea may have small irritated pits in its surface (ulcerations).

Destruction of secretion glands in other areas of the body may cause a variety of symptoms. In the nose, dryness may result in **nosebleeds**. In the rest of the respiratory tract, the rates of **ear infection**, hoarseness, **bronchitis**, and **pneumonia** may increase. Vaginal dryness can be quite uncomfortable. Rarely, the pancreas may slow production of enzymes critical for digestion. The kidney may malfunction. About 33% of all patients with Sjögren's syndrome have other symptoms unrelated to gland destruction. These symptoms include **fatigue**, decreased energy, fevers, muscle aches and pains, and joint **pain**.

Patients who also have other autoimmune diseases will suffer from the symptoms specific to those conditions. A rare but serious complication of Sjögren's syndrome is inflammation of the blood vessels (vasculitis), which can damage tissues supplied by these blood vessels.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Diagnosis

Diagnosis of Sjögren's syndrome is based on the patient having at least three consecutive months of bothersome eye and/or mouth dryness. A variety of tests can then be done to determine the quantity of tears produced, the quantity of saliva produced, and the presence or absence of antibodies that could be involved in the destruction of glands.

Treatment

There is no cure for Sjögren's syndrome. Instead, treatment usually attempts to reduce the discomfort and complications associated with dryness of the eyes and mouth (and other areas). Artificial tears are available, and may need to be used up to every 30 minutes. By using these types of products, the patient is more comfortable and avoids the complications associated with eyes that are overly dry. **Dry mouth** is treated by sipping fluids slowly but constantly throughout the day. Sugarless chewing gum can also be helpful. An artificial saliva is available for use as a mouthwash. Careful dental hygiene is important in order to avoid tooth decay, and it is wise for patients to decrease sugar intake.

Allopathic treatment

Vaginal dryness can be treated with certain gel preparations. Steroid or immunosuppressive medications may be required when other symptoms of autoimmune disorders complicate Sjögren's syndrome. However, these medications should be avoided when possible because they may thin the cornea and make it even more susceptible to injury.

Expected results

The prognosis for patients with primary Sjögren's syndrome is particularly good. Although the condition is quite annoying, serious complications rarely occur. The prognosis for patients with secondary Sjögren's syndrome varies, since it depends on the prognosis for the accompanying autoimmune disorder.

Prevention

Since the cause of Sjögren's syndrome is unknown, there are no known ways to prevent this syndrome.

Resources

BOOKS

Aaseng, Nathan. *Autoimmune Diseases*. New York: F. Watts, 1995.

Koopman, D. *Arthritis and Allied Conditions*. New York: Williams and Wilkins, 1997.

Moutsopoulos, Haralampos M. "Sjögren's Syndrome." In *Harrison's Principles of Internal Medicine*, edited by Anthony S. Fauci, et al. New York: McGraw-Hill, 1998.

Talal, N., et al. *Sjögren's syndrome: Clinical and Immunological Aspects*. Berlin: Springer, 1987.

PERIODICALS

Moran, M. "Autoimmune Diseases Could Share Common Genetic Etiology."*American Medical News*.44; no. 38: (October 8, 2001):38.

Moutsopoulos, H. M., and P. G. Vlachoyiannopoulos. "What Would I Do If I Had Sjögren's syndrome?" *Rheumatology Review* 2 (1993): 17+.

Moutsopoulos, H. M., and P. Youinou. "New Developments in Sjögren's syndrome." *Current Opinion in Rheumatology* 3 (1991): 815+.

ORGANIZATIONS

National Institute of Arthritis & Skin Diseases. Building 31, Room 4C05, Bethesda, MD 20892-2350. (301) 496-8188. http://nih.gov/niams.

National Organization for Rare Disorders (NORD). P.O. Box 8923, New Fairfield, CT 06812-2510. (203) 746-6518 (800) 999-6673.

National Sjögren's Syndrome Association. 5815 N. Black Canyon Highway, #103, Phoenix, AZ 85015-2200. (602) 443-9844.

Kim Sharp
Teresa Norris

Skin cancer

Definition

Skin **cancer** is a malignant growth of the external surface or epithelial layer of the skin.

Description

Skin cancer is the growth of abnormal cells capable of invading and destroying other associated skin cells. Skin cancer is often subdivided into either melanoma or non-melanoma. Melanoma is a dark-pigmented, usually malignant, tumor arising from a skin cell capable of making the pigment melanin (a melanocyte). Melanoma can spread throughout the body via the bloodstream or lymphatic system. Non-melanoma skin cancer most often originates from the external skin surface as a squamous cell carcinoma or a basal cell carcinoma.

The cells of a cancerous growth originate from a single cell that reproduces uncontrollably, resulting in

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Autoimmune—Pertaining to an immune response by the body against one of its own tissues or types of cells.

Curettage—The removal of tissue or growths by scraping with a curette.

Dermatologist—A physician specializing in the branch of medicine concerned with skin.

Electrodesiccation —To make dry, dull, or lifeless with the use of electrical current.

Lesion—An area of skin that has been infected or diseased.

Topical—Referring to a medication or other preparation applied to the skin or the outside of the body.

the formation of a tumor. Exposure to sunlight is documented as the main cause of almost 800,000 cases of skin cancer diagnosed each year in the United States. The incidence increases for those living where direct sunshine is plentiful, such as in regions near the equator.

Basal cell carcinoma affects the skin's basal layer and has the potential to grow progressively larger in size, although it rarely spreads to distant areas (metastasizes). Basal cell carcinoma accounts for 80% of skin cancers (excluding melanoma), whereas squamous cell cancer makes up about 20%. Squamous cell carcinoma is a malignant growth of the external surface of the skin. Squamous cell cancers metastasize at a rate of 2–6%, with up to 10% of lesions affecting the ear and lip.

Causes and symptoms

Cumulative sun exposure is considered a significant risk factor for non-melanoma skin cancer. High incidence has been noted in individuals with freckles, light hair, and light complexion; in individuals with darker skin, the palms, soles, mucous membranes, and other areas of light pigmentation are the most common sites for melanomas.

Pre-existing moles can change into melanomas, and should be observed for any particular change in appearance, specifically the classic *ABCD* appearance, where asymmetrical borders, colors, and diameter are observed. Lesions typically are circular with irregular or *asymmetrical borders*. Melanomas typically have a combination of *colors*, including tan, brown, black, or gray; there may also be a dull pink or rose pigmentation within a small area of the lesion. The *diameter* of a malignant melanoma is typically greater than that of a pencil eraser.

There is evidence suggesting that early intense sun exposure causing blistering **sunburn** in childhood may also play an important role in the cause of non-melanoma skin cancer. Basal cell carcinoma most frequently affects the skin of face, with the next most common sites being the ears, the backs of the hands, the shoulders, and the arms. It is prevalent in both sexes, and most commonly occurs in people over the age of 40.

Basal cell carcinoma usually appears as a small skin lesion that persists for at least three weeks. This form of non-melanoma looks flat and waxy, with the edges of the lesion translucent and rounded. The edges also contain small, fresh blood vessels. An ulcer found in the center gives the lesion a dimpled appearance. Basal cell carcinoma lesions vary from 4–6 mm in size, but can slowly grow larger if left untreated.

Squamous cell carcinoma also involves skin exposed to the sun, such as the face, ears, hands, or arms. This form of non-melanoma also is most common among people over the age of 40. Squamous cell carcinoma presents itself as a small, scaling, raised bump on the skin with a crusting ulcer in the center, but without **itching**.

Basal cell and squamous cell carcinomas can grow more easily when people have a suppressed immune system because they are taking immunosuppressive drugs or are exposed to radiation. Some people must take immunosuppressive drugs to prevent the rejection of a transplanted organ or because they have a disease in which the immune system attacks the body's own tissues, referred to as autoimmune illnesses; others may need radiation therapy to treat another form of cancer. Because of this, all people taking these immunosuppressive drugs or receiving radiation treatments should undergo complete skin examination at regular intervals. If proper treatment is delayed and the tumor continues to grow, the tumor cells can spread, or metastasize, to other muscles, bones, nerves, and possibly to the brain.

About 1–2% of all skin cancers develop within burn scars; squamous cell carcinomas account for about 95% of these cancers, with 3% being basal cell carcinomas and the remainder malignant melanomas.

Diagnosis

To diagnose skin cancer, doctors must carefully examine the lesion and ask the patient about how long it has been there, whether it itches or bleeds, and other questions about the patient's medical history. If skin

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

cancer cannot be ruled out, a biopsy is performed, where a sample of the tissue is removed and examined under a microscope. A definitive diagnosis of melanoma, squamous, or basal cell cancer can only be made with microscopic examination of the tumor cells. Once skin cancer has been diagnosed, the stage of the disease's development is determined. The information from the biopsy and staging allows the physician and patient to plan for treatment and possible surgical intervention.

Treatment

Alternative medicine aims to prevent, rather than treat, skin cancer. Vitamins have been shown to prevent sunburn and, possibly, skin cancer. Some dermatologists have suggested that taking antioxidant vitamins E and C by mouth may help prevent sunburn. In one particular study, men and women took these vitamins for eight days prior to being exposed to ultraviolet light. The researchers found that those who consumed vitamins required about 20% more ultraviolet light to induce sunburn than did people who did not take vitamins. This is the first study that indicates the oral use of vitamins E and C increases resistance to sunburn. These **antioxidants** are thought to reduce the risk of skin cancer, and are expected to provide protection from the sun even if taken in lower doses. Other antioxidant nutrients, including **beta carotene**, **selenium**, **zinc**, and the bioflavonoid **quercetin**, may also help prevent skin cancer, as may such antioxidant herbs as **bilberry** (*Vaccinium myrtillus*), **hawthorn** (*Crataegus laevigata*), **turmeric** (*Curcuma longa*), and ginkgo (*Ginkgo biloba*).

A team of researchers at Duke University reported in 2003 that topical application of a combination of 15% **vitamin C** and 1% **vitamin E** over a four-day period offered significant protection against sunburn. The researchers suggest that this combination may protect skin against **aging** caused by sunlight as well.

Another antioxidant that appears to counter the effects of severe sun exposure is superoxide dismutase, or SOD. SOD must be given in injectable form, however, because it is destroyed in the digestive tract.

As of 2003, researchers are also looking at botanical compounds that could be added to skin care products applied externally to lower the risk of skin cancer. Several botanical compounds have been tested on animals and found to be effective in preventing skin cancer, but further research needs to be done in human subjects.

Allopathic treatment

A wide surgical removal of the melanoma and surrounding tissue is usually necessary. This may also include removal of affected lymph nodes, usually followed by skin grafting, which is a process where a piece of skin that is taken from a donor area replaces the skin removed.

Since the early 1990s, some melanomas have been treated with chemotherapy (usually carmustine or lomustine); other biological therapies are also being used as of 2003.

A variety of treatment options are available for those diagnosed with non-melanoma skin cancer. Some carcinomas can be removed by cryosurgery, the process of freezing with liquid nitrogen. Uncomplicated and previously untreated basal cell carcinoma of the torso and arms is often treated with curettage and electrodesiccation, which is the scraping of the lesion and the destruction of any remaining malignant cells with an electrical current. Moh's surgery, or removal of a lesion layer-by-layer down to normal margins, is an effective treatment for both basal and squamous cell carcinoma. Radiation therapy is best reserved for older, debilitated patients, or when the tumor is considered inoperable. Laser therapy is sometimes useful in specific cases; however, this form of treatment is not widely used to treat skin cancer.

Expected results

Both squamous and basal cell carcinoma are curable with appropriate treatment. Early detection remains critical for a positive prognosis.

Prevention

Avoiding exposure to the sun reduces the incidence of non-melanoma skin cancer. Sunscreen with a sun-protective factor (SPF) of 15 or higher is helpful in prevention, along with a hat and clothing to shield the skin from sun damage. Individuals who are physically active while exposed to sunlight should consider using waterproof sunscreen, or reapply it. There are many different brands of sunscreen for those with certain skin **allergies**. People should examine their skin monthly for unusual lesions, especially if previous skin cancers have been experienced.

Advances in photographic technique have now made it easier to track the development of moles with the help of whole-body photographs. A growing number of hospitals are offering these photographs as part of outpatient mole-monitoring services.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Resources

BOOKS

Chandrasoma, Parakrama, and Clive R. Taylor. *Concise Pathology*. East Norwalk, CT: Appleton and Lange, 1991.

Copstead, Lee-Ellen C. "Alterations in the Integument." In *Perspectives on Pathophysiology*. Copstead. Philadelphia: W.B. Saunders, 1994.

"Dermatologic Disorders: Malignant Tumors." Section 10, Chapter 126 in *The Merck Manual of Diagnosis and Therapy*, edited by Mark H. Beers, MD, and Robert Berkow, MD. Whitehouse Station, NJ: Merck Research Laboratories, 2002.

"Dermatologic Disorders: Reactions to Sunlight." Section 10, Chapter 119 in *The Merck Manual of Diagnosis and Therapy*, edited by Mark H. Beers, MD, and Robert Berkow, MD. Whitehouse Station, NJ: Merck Research Laboratories, 2002.

Pelletier, Kenneth R., MD. *The Best Alternative Medicine*, Part I: Food for Thought. New York: Simon & Schuster, 2002.

PERIODICALS

Bray, C. "The Development of an Improved Method of Photography for Mole-Monitoring at the University Hospital of North Durham." *Journal of Audiovisual Media in Medicine* 26 (June 2003): 60–66.

Brown, C. K., and J. M. Kirkwood. "Medical Management of Melanoma." *Surgical Clinics of North America* 83 (April 2003): 283–322.

F'guyer, S., F. Afaq, and H. Mukhtar. "Photochemoprevention of Skin Cancer by Botanical Agents." *Photodermatology, Photoimmunology and Photomedicine* 19 (April 2003): 56–72.

Jellouli-Elloumi, A., L. Kochbati, S. Dhraief, et al. "Cancers Arising from Burn Scars: 62 Cases." [in French] *Annales de dermatologie et de venereologie* 130 (April 2003): 413–416.

Lin, J. Y., M. A. Selim, C. R. Shea, et al. "UV Photoprotection by Combination Topical Antioxidants Vitamin C and Vitamin E." *Journal of the American Academy of Dermatology* 48 (June 2003): 866-874.

ORGANIZATIONS

American Academy of Dermatology. 930 N. Meacham Road, Schaumburg, IL 60173. (847) 330–0230 or (888) 462–DERM (227–3376).

American Cancer Society. 1599 Clifton Road NE, Atlanta, GA 30329. (800) ACS-2345.

Centers for Disease Control and Prevention (CDC) Cancer Prevention and Control Program. 4770 Buford Highway, NE, MS K64, Atlanta, GA 30341. (888) 842-6355. http://www.cdc.gov/cancer/comments.htm.

National Cancer Institute (NCI). NCI Public Inquiries Office, Suite 3036A, 6116 Executive Boulevard, MSC8332, Bethesda, MD 20892-8322. (800) 4-CANCER or (800) 332-8615 (TTY). http://www.nci.nih.gov.

Kathleen Wright
Rebecca J. Frey, PhD

Skullcap

Description

Skullcap is a name that refers to any of the dozens of species (*Scutellaria*) of the mint family Lamiaceae. The plant's name refers to the helmet-shaped calyx on the outer whorl of the plant's tiny flowers. The flowers range in color from blue to pink. In herbal medicine, the name skullcap refers to *Scutellaria lateriflora*, a perennial herb native to North America and cultivated in Europe. The leaves, flowers, and stems are used as herbal remedies. Skullcap is also known as scullcap, American skullcap, Western skullcap, European skullcap, blue skullcap, greater skullcap, hoodwort or hoodwart, blue pimpernel, Quaker bonnet, helmet flower, hooded willow herb, side-flowering skullcap, mad-dog weed, and mad weed.

Chinese skullcap (*Scutellaria baicalensis*) is a related species. The species *Scutellaria baicalensis Georgi* is native to eastern Asia, and the skinless yellow root of this plant is used in traditional Chinese medicine (TCM). Its Chinese name is *huang qin*. Chinese skullcap is sometimes called baikal, baical skullcap root, scute, and scutellaria. Another species used in Chinese medicine is *Scutellaria barbata*, whose Chinese name is *ban zhi lian*.

General use

Skullcap was once called mad-dog weed because of its use during the eighteenth century to treat **rabies**. In addition, Native Americans used skullcap as a sedative, tranquilizer, and a digestive aid. Other cultures have used it as a sedative and to lower fevers.

In contemporary practice, both common skullcap and Chinese skullcap are used as remedies for **anxiety**, nervous tension, pre-menstrual syndrome (PMS), **insomnia**, **stress** headaches, **muscle spasms**, seizures, and **epilepsy**. In addition, each herb is used for a variety of other conditions, and even in these conditions they are used differently.

Skullcap

Skullcap (*Scutellaria lateriflora*) is currently known best as a herbal sedative. By reducing tension, skullcap may contribute to lower blood pressure. Skullcap is also used as a remedy for exhaustion, convulsions, menstrual cramps, and as a treatment for withdrawal from alcohol and tobacco. The herb may be taken as a bitter tonic to boost digestion. Skullcap is also sometimes used as a remedy for hiccups, hangovers, and **asthma**.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Adulterant—A substance that makes something impure or inferior.

Baicalein—A compound found in skullcap that appears to be a cancer chemopreventive.

Barbiturate—Any of an older group of sedatives derived from barbituric acid. Barbiturates were frequently prescribed in the 1950s and 1960s as sleeping pills.

Benzodiazepine—Any of a group of minor tranquilizers given to relieve anxiety; they produce sedation and muscle relaxation.

Decoction—A method for releasing the herbal essence of bark or roots by boiling or simmering them in a non-aluminum pan.

Flavone—A colorless crystalline compound found in skullcap and other plants that is the parent substance of a group of yellow plant pigments.

Germander—A plant, *Teucrium chamaedrys*, that belongs to the mint family and may have been used to adulterate skullcap products reported to cause liver damage.

Infusion—A method for releasing the herbal essence of herbal leaves and flowers by pouring boiling water over the plant matter and allowing it to steep.

Pharmacognosist—A person involved in pharmacognosy, the science concerned with the medical products of plants in their natural state.

Sedative—A preparation or medication given to calm or soothe.

Tincture—A method of preserving herbs in a solution of alcohol or water.

Chinese skullcap

In **traditional Chinese medicine**, baical skullcap (*Scutellaria baicalensis*) is prescribed for irritability, dysentery, **diarrhea**, **infections** accompanied by **fever**, hay fever, urinary tract infections, **gout**, jaundice, potential miscarriages, nosebleed, abdominal **pain**, and redness in the eyes or face. The herb is used for **hepatitis** and has been said to improve liver function. The root of baical skullcap is also given in formulas together with other herbs for vaginal bleeding, blood in the stool, and coughing or vomiting blood. Chinese skullcap is frequently among the ingredients in herbal compounds used for disorders involving high cholesterol and triglycerides, high blood pressure, allergic diseases, and inflammatory skin conditions.

As of the late 1990s, research in countries including China indicated that Chinese skullcap showed "promise" in treating allergies, **cancer**, and as an aspirin-like anti-inflammatory remedy. Research at that time also indicated that the herb might be used in the future to prevent strokes and heart disease . A team of researchers in Hong Kong reported in 2002 that baicalein, a flavonoid derived from skullcap, appears to have chemoprotective effects against cancer.

Another recent discovery is that a group of flavones in skullcap appear to protect nerve cells against the damage caused by oxidation. This finding may have potential applications in treating **Alzheimer's disease**.

Preparations

Skullcap (*scutellaria lateriflora*) and Chinese skullcap (*scutellaria baicalensis*) are both taken internally. Skullcap is generally sold commercially as a liquid extract, as a tea, in dried form, and in capsules. The leaves and flowers are used as remedies for such conditions as insomnia. In the United States, "blue skullcap" refers to scutellaria that is frequently harvested without determining the species, according to *Tyler's Honest Herbal*. Tyler, a respected pharmacognosist, wrote that "pink scullcap" is an adulterant with pink flowers. It costs the manufacturer less than blue skullcap.

Chinese skullcap root is sold usually in bulk or capsule form, the capsules usually containing other herbs. Both Chinese skullcap and common skullcap have a bitter taste, and there are customary dosages for both herbs.

Skullcap dosages

Skullcap tea can be purchased commercially or brewed at home for conditions including anxiety, tension, and PMS. Skullcap preparations include:

- A tea prepared by pouring 1 cup (250 ml) of boiling water over 1–2 tsp. (5–10 g) of dried leaves. The mixture is covered and steeped for 10–15 minutes. From two to three cups of tea may be consumed daily.
- A liquid tincture that can be taken three times daily. The tincture, 1/2–1 tsp (2–4 ml) of solution, is added to an 8 oz (250 ml) glass of warm water. Skullcap tincture can be purchased over the counter, or made at home by mixing the herb with water or alcohol in a ratio of 1:5 or 1:10.
- To ease insomnia, skullcap leaves can be placed inside a dream pillow. Also known as a sleep pillow, it can be made by sewing together two 8-in (20.3-cm) pieces of fabric. The dream pillow is placed under the bed pillow.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Chinese skullcap dosages

Chinese skullcap tea is prepared by adding 1–3 tsp (5–15 g) of the powdered root to 1 cup (250 ml) of boiling water. The mixture is covered and steeped for 10–20 minutes. From three to four cups may be consumed daily.

Baikal skullcap is also available in capsule form. Three capsules of the standard dosage may be taken for treatment of liver ailments and chronic inflammatory conditions.

The root of Chinese skullcap is usually decocted, but it may be fried dry and consumed for conditions such as diarrhea and urinary tract infections. The root can be cooked in wine to treat upper respiratory infections and redness in the face and eyes. A practitioner of traditional Chinese medicine can provide information about specific dosages.

Skullcap combinations

Skullcap may be combined with other herbs such as oats or **St. John's wort**. It works well in combination with such sedative herbs as **valerian**, passionflower, and **black cohosh**. Skullcap is included among the herbal ingredients in a tincture that people take to quit smoking. Other herbs in this tincture include **mullein**, St. John's wort, and **licorice**.

Precautions

Before beginning herbal treatment, people should consult a physician, practitioner, or herbalist. This precaution is especially important when taking skullcap or Chinese skullcap because there is disagreement among health care professionals about whether these herbs are safe to use. Advocates of both remedies state that research conducted in China and Russia proves that skullcap is safe and effective. Although the United States Food and Drug Administration does not subject herbal preparations (which are regarded as dietary supplements) to the same types of regulatory procedures as prescription drugs, it does monitor reports of adverse interactions to herbal products. Between 1996, when the FDA's MedWatch program began, and January 2003, there have been no reports or alerts for American consumers regarding products contaiing skullcap. There have, however, been reports of liver toxicity from products containing skullcap in the Netherlands and Norway in the early 1990s. Until more is known, some experts advise that skullcap should be avoided on the grounds that it can cause liver damage.

That is also the position of Hepatitis Foundation International, which rates skullcap as toxic to the liver. That position that had not changed by May of 2000. It is also possible, however, that skullcap may have been mistakenly identified as dangerous. Tyler was among the herbal experts who pointed out that germander, a herb that causes liver damage, was found in the skullcap products taken by people who experienced liver damage. In addition, some supporters of skullcap maintain that prejudice against the herb stems from its previous use as a rabies treatment.

Skullcap is safe for adults when taken in proper dosages.

Skullcap advocates state that the herb can be used safely for relieving conditions such as PMS. Some experts, however, recommend medical supervision when taking skullcap for medicinal purposes. That precaution is particularly important for pregnant women and those who are lactating. Skullcap may cause drowsiness, so the person taking it should not drive or operate heavy equipment.

Chinese skullcap should not be taken when a person has diarrhea or a deficiency of heat in the lungs.

Side effects

Possible side effects include diarrhea, an upset stomach, and drowsiness. If the first two conditions occur, the person should reduce the dosage of skullcap or stop taking it. In addition, large amounts of the tincture may cause giddiness, twitching, confusion, erratic pulse, and seizures.

Interactions

In traditional Chinese medicine, Chinese skullcap is said to offset the effects of some Chinese remedies. For this reason, it is important that persons using Chinese skullcap consult a traditional practitioner, as Chinese skullcap is usually given in combinations of herbs that are specific to each symptom.

With regard to standard prescription medications, people who are taking antihistamines, barbiturates, benzodiazepines, or sedative medications should not use skullcap because it will intensify their effects on the central nervous system, particularly drowsiness.

People who are taking skullcap should discontinue its use two weeks before any surgical procedure requiring general anesthesia, as skullcap interacts with anesthetics to lower blood pressure. For the same reason, skullcap should not be used by persons who are taking drugs to control high blood pressure (antihypertensives).

Skullcap also interferes with the body's absorption of **iron** and other minerals; persons who are

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

taking mineral supplements should therefore use skullcap with caution.

Resources

BOOKS

Duke, James A. *The Green Pharmacy*. Emmaus, PA: Rodale Press, Inc., 1997.

Keville, Kathi. *Herbs for Health and Healing*. Emmaus, PA: Rodale Press, Inc., 1996

L'Orange, Darlena. *Herbal Healing Secrets of the Orient*. Paramus, NJ: Prentice Hall, 1998.

PDR for Herbal Medicines. Montvale, NJ: Medical Economics Company, 1998.

Reid, Daniel. *Chinese Herbal Medicine*. Boston: Shambhala, 1996.

Squier, Thomas Broken Bear, with Lauren David Peden. *Herbal Folk Medicine*. New York: Henry Holt and Company, 1997.

Tyler, Varro and Steven Foster. *Tyler's Honest Herbal*. Binghamton, NY: The Haworth Herbal Press, 1999.

PERIODICALS

Chan, H. Y., Z. Y. Chen, D. S. Tsang, and L. K. Leung. "Baicalein Inhibits DMBA-DNA Adduct Formation by Modulating CYP1A1 and CYP1B1 Activities." *Biomedicine and Pharmacotherapy* 56 (August 2002): 269-275.

Choi, J., C. C. Conrad, C. A. Malakowsky, et al. "Flavones from *Scutellaria baicalensis Georgi* Attenuate Apoptosis and Protein Oxidation in Neuronal Cell Lines." *Biochimica et Biophysica Acta* 1571 (July 3, 2002): 201-210.

Xie, L. H., X. Wang, P. Basnet, et al. "Evaluation of Variation of Acteoside and Three Major Flavonoids in Wild and Cultivated *Scutellaria baicalensis* Roots by Micellar Electrokinetic Chromatography." *Chemical and Pharmaceutical Bulletin (Tokyo)* 50 (July 2002): 896-899.

ORGANIZATIONS

American Botanical Council. P.O. Box 201660. Austin TX, 78720.(512) 331-8868.

Herb Research Foundation. 1007 Pearl St., Suite 200. Boulder, CO 80302. (303) 449-2265. www.herbs.org.

Liz Swain
Rebecca J. Frey, PhD

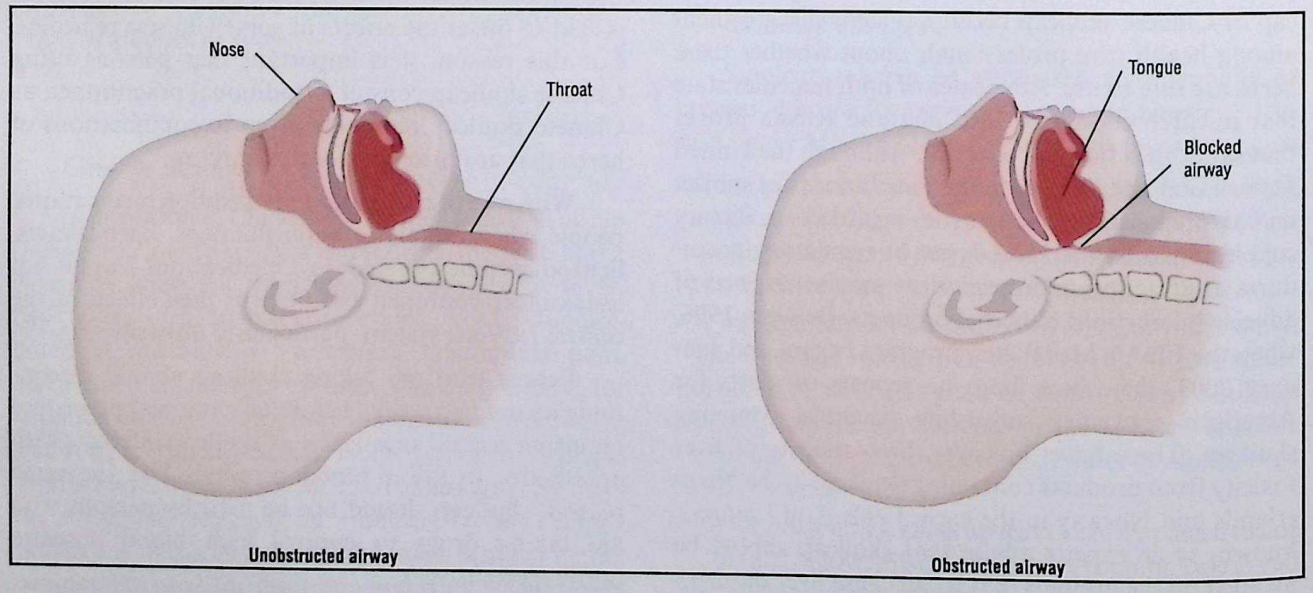
Sleep apnea

Definition

Sleep apnea is a condition in which breathing stops for more than ten seconds during sleep. Sleep apnea is a major, though often unrecognized, cause of daytime sleepiness. It can have serious negative effects on a person's quality of life and is thought to be considerably underdiagnosed in the United States.

Description

A sleeping person normally breathes continuously and without interruption throughout the night. Individuals with sleep apnea, however, have frequent episodes (up to 400–500 per night) in which they stop breathing. This interruption of breathing is called



Sleep apnea is caused when the airway of the sleeping person becomes obstructed. *(Illustration by GGS Information Services, Inc. Cengage Learning, Gale)*

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

apnea. Breathing usually stops for about 30 seconds then the person usually startles awake with a loud snort and begins to breathe again, gradually falling back to sleep.

There are two forms of sleep apnea. In *obstructive sleep apnea* (OSA), breathing stops because tissue in the throat closes off the airway. In *central sleep apnea*, (CSA), the brain centers responsible for breathing fail to send messages to the breathing muscles. OSA is much more common than CSA. It is thought that about 1–10% of adults are affected by OSA; only about one tenth of that number has CSA. OSA can affect people of any age and of either sex, but it is most common in middle-aged, somewhat overweight men, especially those who use alcohol.

Causes and symptoms

Obstructive sleep apnea

Obstructive sleep apnea occurs when part of the airway is closed off (usually at the back of the throat) while a person is trying to inhale during sleep. People whose airways are slightly narrower than average are more likely to be affected by OSA. **Obesity**, especially obesity in the neck, can increase the risk of developing OSA because the fat tissue tends to narrow the airway. In some people, the airway is blocked by enlarged tonsils, an enlarged tongue, jaw deformities, or growths in the neck that compress the airway. Blocked nasal passages may also play a part in some people's apnea.

When people begin to inhale, expansion of the lungs lowers the air pressure inside the airway. If the muscles that keep the airway open are not working hard enough, the airway narrows and may collapse, shutting off the supply of air to the lungs. OSA occurs during sleep because the neck muscles that keep the airway open are not as active then. Congestion in the nose can make collapse more likely, since the extra effort needed to inhale will lower the pressure in the airway even more. Drinking alcohol or taking tranquilizers in the evening worsens this situation because these cause the neck muscles to relax. These drugs also lower the respiratory drive in the nervous system, reducing breathing rate and strength.

People with OSA almost always snore heavily because the same narrowing of the airway that causes **snoring** can also cause OSA. Snoring may actually help cause OSA as well because the vibration of the throat tissues can cause them to swell. However, most people who snore do not go on to develop OSA.

Other risk factors for developing OSA include male sex, **pregnancy**, a family history of the disorder, and **smoking**. With regard to gender, it has been found that male sex hormones sometimes cause changes in the size or structure of the upper airway. The weight gain that accompanies pregnancy can affect a woman's breathing patterns during sleep, particularly during the third trimester. With regard to family history, OSA is known to run in families even though no gene or genes associated with the disorder had been identified as of 2002. Smoking increases the risk of developing OSA because it causes inflammation, swelling, and narrowing of the upper airway.

Some patients being treated for head and neck **cancer** develop OSA as a result of physical changes in the muscles and other tissues of the neck and throat. Doctors recommend prompt treatment of the OSA to improve the patient's quality of life.

Central sleep apnea

In central sleep apnea, the airway remains open, but the nerve signals controlling the respiratory muscles are not regulated properly. This loss of regulation can cause wide fluctuations in the level of carbon dioxide (CO_2) in the blood. Normal activity in the body produces CO_2, which is brought by the blood to the lungs for exhalation. When the blood level of CO_2 rises, brain centers respond by increasing the rate of respiration, clearing the CO_2. As blood levels fall again, respiration slows down. Normally, this interaction of CO_2 and breathing rate maintains the CO_2 level within very narrow limits. CSA can occur when the regulation system becomes insensitive to CO_2 levels, allowing wide fluctuations in both CO_2 levels and breathing rates. High CO_2 levels cause very rapid breathing (hyperventilation), which then lowers CO_2 so much that breathing becomes very slow or even stops. CSA occurs during sleep because when a person is awake, breathing is usually stimulated by other signals, including conscious awareness of breathing rate.

A combination of the two forms is also possible and is called mixed sleep apnea. Mixed sleep apnea episodes usually begin with a reduced central respiratory drive, followed by obstruction.

OSA and CSA cause similar symptoms. The most common symptoms are:

- daytime sleepiness
- morning headaches
- a feeling that sleep is not restful
- disorientation upon waking
- memory loss and difficulty paying attention

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

- poor judgment
- personality changes

Sleepiness is caused not only by the frequent interruption of sleep, but by the inability to enter long periods of deep sleep, during which the body performs numerous restorative functions. OSA is one of the leading causes of daytime sleepiness and is a major risk factor for motor vehicle accidents. Headaches and disorientation are caused by low oxygen levels during sleep, from the lack of regular breathing.

Other symptoms of sleep apnea may be **sexual dysfunction**, loss of concentration, **memory loss**, intellectual impairment, and behavioral changes including **anxiety** and **depression**.

Sleep apnea is also associated with night sweats and nocturia, or increased frequency of urination at night. **Bedwetting** in children is linked to sleep apnea.

Sleep apnea can cause serious changes in the cardiovascular system. Daytime **hypertension** (high blood pressure) is common. An increase in the number of red blood cells (polycythemia) is possible, as is an enlarged left ventricle of the heart (cor pulmonale), and left ventricular failure. In some people, sleep apnea causes life-threatening changes in the rhythm of the heart, including heartbeat slowing (bradycardia), racing (tachycardia), and other types of "arrhythmias." Sudden death may occur from such arrhythmias. Patients with the Pickwickian syndrome (named after a Charles Dickens character) are obese and sleepy, with right heart failure, pulmonary hypertension, and chronic daytime low blood oxygen (hypoxemia) and increased blood CO_2 (hypercapnia).

A study presented at the 2007 meeting of the American Thoracic Society found an association between sleep apnea, gestational diabetes, and high blood pressure associated with pregnancy.

Diagnosis

Excessive daytime sleepiness is the complaint that usually brings a person to see the doctor. A careful medical history includes questions about alcohol, tobacco, or tranquilizer use; family history; snoring (often reported by the person's partner); and morning headaches or disorientation. A physical examination includes examination of the mouth, nose, and throat to look for narrowing or obstruction, or unusual size or shape of the tonsils or adenoids. Blood pressure is also measured. Measuring heart rate or blood levels of oxygen and CO_2 during the daytime is not usually be done, since these are abnormal only at night in most patients.

In some cases the person's dentist may suggest the diagnosis of OSA on the basis of a dental checkup or evaluation of the patient for oral surgery.

Confirmation of the diagnosis usually requires making measurements while the person sleeps. These tests are called a polysomnography study and are conducted during an overnight stay in a specialized sleep laboratory. Important parts of the polysomnography study include measurements of the following:

- heart rate
- airflow at the mouth and nose
- respiratory effort
- sleep stage (i.e., light sleep, deep sleep, dream sleep)
- oxygen level in the blood, using a noninvasive probe (ear oximetry)

Simplified studies done overnight at home are also possible and may be appropriate for people whose profile strongly suggests the presence of obstructive sleep apnea; that is, middle-aged, somewhat overweight men, who snore and have high blood pressure. The home-based study usually includes ear oximetry and cardiac measurements. If these measurements support the diagnosis of OSA, initial treatment is usually suggested without polysomnography. Home-based measurements are not used to rule out OSA, however, and if the measurements do not support the OSA diagnosis, polysomnography may be needed to define the problem further.

Treatment

Treatment of obstructive sleep apnea begins with reducing the use of alcohol or tranquilizers in the evening, if these have been contributing to the problem. Quitting smoking is recommended for a number of health concerns in addition to OSA. Weight loss is also effective, but if the weight returns, as it often does, so does the apnea. Changing sleeping position may be effective. Snoring and sleep apnea are both most common when individuals sleep on their backs. Turning to sleep on the side may be enough to clear up the symptoms. Raising the head of the bed may also help.

There are few reports of OSA being treated by alternative and complementary approaches. In 2002, however, some Japanese researchers reported on the case of a 44-year-old male who was successfully treated for OSA by taking a Kampo extract, or traditional Japanese herbal formulation.

Allopathic treatment

Opening of the nasal passages can provide some relief for sleep apnea sufferers. There are a variety of

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

nasal devices such as clips, tapes, or holders which may help, though discomfort may limit their use. Nasal decongestants may be useful but should not be taken for sleep apnea without the consent of the treating physician. Supplemental nighttime oxygen can be useful for some people with either central or obstructive sleep apnea. Tricyclic antidepressant drugs such as protriptyline (Vivactil) may help by increasing the muscle tone of the upper airway muscles, but their side effects may severely limit their usefulness.

For moderate to severe sleep apnea, the most successful treatment is nighttime use of a ventilator, called a CPAP machine. CPAP (continuous positive airway pressure) blows air into the airway continuously, preventing its collapse. CPAP requires the use of a nasal mask. The appropriate pressure setting for the CPAP machine is determined by polysomnography in the sleep lab. Its effects are dramatic; daytime sleepiness usually disappears within one to two days after treatment begins. CPAP is used to treat both obstructive and central sleep apnea.

CPAP is tolerated well by about two-thirds of patients who try it. Bilevel positive airway pressure (BiPAP) is an alternative form of ventilation. With BiPAP, the ventilator reduces the air pressure when the person exhales. This is more comfortable for some. In a study released in 2005, researchers found that sleep apnea may damage the functioning of the heart's left ventricle. Researchers concluded that CPAP may help avoid the progression of the damage and may reverse damage already inflicted. In another study, conducted at the Cleveland Clinic and released in 2007, researchers found that while CPAP effectively enhances sleep and lessens daytime sleepiness, its effects on cardiovascular risk remain uncertain.

Another approach to treating OSA involves the use of oral appliances intended to improve breathing either by holding the tongue in place or by pushing the lower jaw forward during sleep to increase the air volume in the upper airway. The first type of oral appliance is known as a tongue retaining device (TRD). The second type is variously called an oral protrusive device (OPD) or mandibular advancement splint (MAS) because it holds the mandible, or lower jaw, forward during sleep. These oral devices appear to work best for patients with mild-to-moderate OSA and in some cases can postpone or prevent the need for surgery. Their rate of patient compliance is about 50%; most patients who stop using oral appliances do so because their teeth are in poor condition. TRDs and OPDs can be fitted by dentists; however, most dentists work together with the patient's physician following a polysomnogram rather than prescribing the device by themselves.

KEY TERMS

Continuous positive airway pressure (CPAP)—A ventilation system that blows a gentle stream of air into the nose to keep the airway open.

Genioplasty—An operation performed to reshape the chin. Genioplasties are often done to treat OSA because the procedure changes the structure of the patient's upper airway.

Mandible—The lower jaw. One type of oral appliance used to treat OSA pushes the mandible forward in order to ease breathing during sleep.

Nocturia—Excessive need to urinate at night. Nocturia is a symptom of OSA and often increases the patient's daytime sleepiness.

Polysomnography—A group of tests administered to analyze heart, blood, and breathing patterns during sleep.

Tracheotomy—A surgical procedure in which a small hole is cut into the trachea, or windpipe, below the level of the vocal cords.

Uvulopalatopharyngoplasty (UPPP)—An operation to remove excess tissue at the back of the throat to prevent it from closing off the airway during sleep.

Surgery can be used to correct obstructions in the airway. The most common surgery is uvulopalatopharngyoplasty (UPPP). This surgery removes tissue from the rear of the mouth and top of the throat. The tissues removed include parts of the uvula (the flap of tissue that hangs down at the back of the mouth), the soft palate, and the pharynx. Tonsils and adenoids are usually removed as well. This operation significantly improves sleep apnea in slightly more than half of all cases. Subsequently, oral surgeons have performed region-specific surgery for OSA, which grew out of the recognition that obstructions may exist in more than one level of the patient's upper airway. Region-specific surgery has a cure rate of over 90%, though it may involve more than one surgery.

A modified tracheotomy may also be performed to treat OSA. This procedure involves the surgical placement of a tiny breathing tube that fits in a 2 mm incision in the throat.

Reconstructive surgery is possible for those whose OSA is due to constriction of the airway by lower jaw deformities. Genioplasty, which is a procedure that

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

plastic surgeons usually perform to reshape a patient's chin to improve his or her appearance, is performed to reshape the upper airway in patients with OSA.

Expected results

Appropriate treatment enables most people with sleep apnea to be treated successfully, although it may take some time to determine the most effective and least intrusive treatment. In many cases consultation and cooperation between the person's physician and dentist work to identify the best treatment option. Polysomnography testing is usually required after beginning a treatment to determine how effective it has been.

Prevention

For people who snore frequently, weight control, smoking cessation, avoidance of evening alcohol or tranquilizers, and adjustment of sleeping position may help reduce the risk of developing obstructive sleep apnea.

Resources

PERIODICALS

Arias, Miguel, et al. "Obstructive Sleep Apnea Syndrome Affects Left Ventricular Diastolic Function: Effects of Nasal Continuous Positive Airway Pressure in Men." *Circulation* 112 (July 11, 2005): 375–383.

Krieger, S., and S. M. Caples. "Obstructive Sleep Apnea and Cardiovascular Disease: Implications for Clinical Practice." *Cleveland Clinic Journal of Medicine* 74, no. 12 (December 2007): 853–856.

OTHER

"Considering Surgery for Snoring?" American Sleep Apnea Association (ASAA). http://www.sleepapnea.org/resources/pubs/snoring.html (February 29, 2008).

"Sleep Apnea Associated with Pregnancy-induced Diabetes, High Blood Pressure." University of Medicine and Dentistry of New Jersey (May 23, 2007). http://www.umdnj.edu/about/news_events/releases/07/r052307_Sleep_Apnea.htm (February 29, 2008).

ORGANIZATIONS

American Academy of Otolaryngology, Head and Neck Surgery, Inc, One Prince Street, Alexandria, VA, 22314-3357, (703) 836-4444, http://www.entnet.org.

American Dental Association, 211 E. Chicago Ave., Chicago, IL, 60611, (312) 440-2500, http://www.ada.org.

American Sleep Apnea Association, 1424 K St. NW, Suite 302, Washington, DC, 20005, (202) 293-3650, http://www.sleepapnea.org.

Canadian Coordinating Office for Health Technology Assessment, 600-865 Carling Ave., OttawaON, K1S5S8, Canada., (613) 226-2553, http://www.ccohta.ca/pubs/english/sleep/treatment.

National Sleep Foundation, 1522 K Street NW, Suite 500, Washington, DC, 20005, (202) 347-3471, http://www.sleepfoundation.org.

Paula Ford-Martin
Rebecca J. Frey, PhD
Rhonda Cloos, RN

Sleep disorders

Definition

Sleep disorders are a group of syndromes characterized by disturbances in the amount, quality, or timing of sleep, or in behaviors or physiological conditions associated with sleep.

Description

An estimated 70 million Americans suffer from sleep disorders, according to the National Institutes of Health. Sleep problems include **insomnia**, **narcolepsy**, **sleep apnea**, restless legs syndrome, and periodic limb movement disorder. Although sleep is a basic behavior in all animals, its function in maintaining health is not completely understood. Between 1975 and 2005, however, researchers have learned about the cyclical patterns of different types of sleep and their relationships to breathing, heart rate, brain waves, and other physical functions.

There are five stages of human sleep. Four stages are characterized by non-rapid eye movement (NREM) sleep, with unique brain wave patterns and physical changes. Dreaming occurs in the fifth stage during rapid eye movement (REM) sleep.

- Stage 1 NREM sleep. This stage occurs while a person is falling asleep and represents about 5% of a normal adult's sleep time.
- Stage 2 NREM sleep. This stage marks the beginning of "true" sleep. About 50% of sleep time is stage 2 NREM sleep.
- Stages 3 and 4 NREM sleep. Also called delta or slow wave sleep, these are the deepest levels of human sleep and represent 10–20% of sleep time. They usually occur during the first 30 to 50% of the sleeping period.
- REM sleep. This stage accounts for 20 to 25% of total sleep time. It usually begins about 90 minutes after the person falls asleep, an important measure called REM latency. REM sleep alternates with NREM sleep about every hour and a half throughout

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

the night. REM periods increase in length over the course of the night.

The average length of nighttime sleep varies among people. Most adults sleep between seven and nine hours a night.

Sleep disorders are classified according to their causes. Primary sleep disorders are distinguished from those that are not caused by other mental disorders, prescription medications, **substance abuse**, or medical conditions. The two major categories of primary sleep disorders are the dyssomnias and the parasomnias.

Dyssomnias

Dyssomnias are primary sleep disorders in which the patient suffers from changes in the amount, restfulness, and timing of sleep. The most important dyssomnia is primary insomnia, which is defined as difficulty in falling asleep or remaining asleep that lasts for at least one month. It is estimated that 35% of adults in the United States experience insomnia during any given year. Primary insomnia usually begins during young adulthood or middle age.

Hypersomnia is a condition marked by excessive sleepiness during normal waking hours. Individuals have either lengthy episodes of daytime sleep or episodes of daytime sleep on a daily basis even though they are sleeping normally at night. The number of people with primary hypersomnia is unknown, although 5 to 10% of patients in sleep disorder clinics have the disorder. Primary hypersomnia usually affects young adults between the ages of 15 and 30.

Nocturnal myoclonus and restless legs syndrome (RLS) can cause either insomnia or hypersomnia in adults. Individuals with nocturnal myoclonus, also called periodic limb movement disorder (PLMD), awaken because of cramps or twitches in the calves and feel sleepy the next day. RLS patients have a crawly or aching feeling in their calves that can be relieved by moving or rubbing the legs. RLS often prevents individuals from falling asleep until the early hours of the morning.

Narcolepsy is a dyssomnia characterized by recurrent "sleep attacks" (abrupt loss of consciousness) lasting 10 to 20 minutes. Individuals feel refreshed by the sleep, but typically feel sleepy again several hours later. Narcolepsy has three major symptoms in addition to sleep attacks: cataplexy (sudden loss of muscle tone and stability), hallucinations, and sleep paralysis. About 40% of individuals with narcolepsy have or have had another mental disorder. Although narcolepsy is considered an adult disorder, it has been reported in children as young as three years of age. Almost 18% of patients with narcolepsy are 10 years old or younger. It is estimated that 0.02 to 0.16% of the general population suffers from narcolepsy.

Breathing-related sleep disorders are syndromes in which individuals' sleep is interrupted by problems with their breathing. There are three types of breathing-related sleep disorders:

- Obstructive sleep apnea syndrome is the most common form, marked by episodes of blockage in the upper airway during sleep. It is found primarily in obese people. Patients with this disorder typically alternate between periods of snoring or gasping (when their airway is partly open) and periods of silence (when their airway is blocked). Very loud snoring is characteristic of this disorder.
- Central sleep apnea syndrome is primarily found in elderly patients with heart or neurological conditions that affect their ability to breathe properly.
- Central alveolar hyperventilation syndrome is found most often in extremely obese people. The patient's airway is not blocked, but his or her blood oxygen level is too low.
- Mixed-type sleep apnea syndrome combines symptoms of both obstructive and central sleep apnea.

Circadian rhythm sleep disorders are dyssomnias resulting from a discrepancy between the person's daily sleep/wake patterns and the demands of social activities, shift work, or travel. There are three circadian rhythm sleep disorder causes: delayed sleep phase (going to bed and arising later than most people); **jet lag** (traveling to a new time zone); and shift work.

Parasomnias

Parasomnias are primary sleep disorders in which the patient's behavior is affected by specific sleep stages or transitions between sleeping and waking.

Nightmare disorder is a parasomnia in which the patient is repeatedly awakened by frightening dreams. Approximately 10 to 50% of children between three and five years old have nightmares. They occur during REM sleep, usually in the second half of the night.

Sleep terror disorder is a parasomnia in which the patient awakens screaming or crying. Unlike nightmares, sleep terrors typically occur in stage 3 or stage 4 NREM sleep during the first third of the night. The patient may be confused or disoriented for several minutes and may not remember the episode the next morning. Sleep terror disorder is most common in children 4 to 12 years of age. It affects about 3% of children and less than 1% of adults.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Sleepwalking disorder (somnambulism) occurs when the patient is capable of complex movements during sleep, including walking. Sleepwalking occurs during stage 3 and stage 4 NREM sleep during the first part of the night. In addition to walking around, patients with sleepwalking disorder have been reported to eat, use the bathroom, unlock doors, or talk to others. It is estimated that 10 to 30% of children have at least one episode of sleepwalking. However, only 1 to 5% meet the criteria for sleepwalking disorder. The disorder is most common in children 8 to 12 years of age.

Sleep disorders related to other conditions

Substances, living situations, and physical or mental disorders that can cause sleep disorders include:

- Mental disorders, especially depression or one of the anxiety disorders, can cause sleep disturbances. Psychiatric disorders are the most common cause of chronic insomnia.
- Medical conditions such as Parkinson's disease, Huntington's disease, viral encephalitis, brain disease, and thyroid disease may cause sleep disorders.
- Such substances as drugs, alcohol, and caffeine frequently produce disturbances in sleep patterns.
- Emotional stress and hormone imbalances can also cause sleep problems.
- Job-related stress is a common factor in sleep disorders. Police officers, firefighters, and other emergency workers have a higher-than-average rate of sleep disorders.
- Sleeping arrangements can be a factor. People who must share a bedroom with someone who snores heavily sometimes develop sleep disorders. In addition, research has shown that having small children sleeping in the same bed as their parents is stressful for the children and contributes to sleep disorders.
- Such prescription medications as antihistamines, corticosteroids, asthma medicines, and drugs that affect the central nervous system can affect sleep patterns.

Causes and symptoms

The causes of sleep disorders have already been discussed with respect to the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)* classification of these disorders.

The most important symptoms of sleep disorders are insomnia and sleepiness during waking hours. Insomnia is the more common of the two symptoms and encompasses the inability to fall asleep at bedtime, repeated awakening during the night, and/or inability to go back to sleep once awakened.

Sleep disorders can have a number of negative health consequences in addition to general feelings of tiredness. Studies have shown that people with sleep disorders are at increased risk of having serious motor vehicle accidents and fatal workplace accidents.

Diagnosis

Diagnosis of sleep disorders usually requires a psychological history as well as a medical history. With the exception of sleep apnea syndromes, physical examinations are not usually revealing. The doctor may also talk to other family members in order to obtain information about the patient's symptoms. Psychological tests or inventories are used because insomnia is frequently associated with mood or affective disorders.

Patients may be asked to keep a sleep diary for one to two weeks to evaluate the sleep disturbance. Medications taken, the length of time spent in bed, and the quality of sleep are recorded.

If breathing-related sleep disorders, myoclonus, or narcolepsy are suspected, the patient may be tested in a sleep laboratory or at home with portable instruments. Polysomnography records physiological functions which can be used to help diagnose sleep disorders as well as conduct research into sleep.

Treatment

General recommendations

General recommendations for getting more restful sleep include:

- Waiting until one feels sleepy before going to bed.
- Not using the bedroom for work, reading, or watching television.
- Arising at the same time every morning.
- Avoiding smoking and drinking caffeinated liquids.
- Limiting fluids after dinner and avoiding alcohol.
- Avoiding high-sugar or high-calorie snacks at bedtime.
- Avoiding highly stimulating activities before bed, such as watching a frightening movie, playing competitive computer games, and exercise.
- Avoiding tossing and turning in bed. Instead, the patient should get up and listen to relaxing music or read.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Herbal remedies

Herbal remedies that are helpful in relieving insomnia include:

- Bach Rescue Sleep, a formula of the flower essences of rock rose, impatiens, clematis, star of Bethlehem, cherry plum, and white chestnut: calms the mind, pacifies anxiety, and stills repetitive thoughts
- catnip (*Nepeta cataria*): poor sleep
- chamomile (*Matricaria recutita*): anxiety
- chrysanthemum (*chrysanthemum morifolium*): insomnia
- hops (*Humulus lupulus*): overactive mind
- lime blossom (*Tilia cordata*): anxiety
- linden (*Tilia* species): anxiety
- oats (*Avena sativa*): poor sleep and nervous exhaustion
- passionflower (*Passiflora incarnata*): anxiety and muscle cramps
- skullcap (*Scutellaria lateriflora*): nervous tension
- squawvine (*Mitchella repens*): insomnia
- St. John's wort (*Hypericum perforatum*): depression
- valerian (*Valeriana officinalis*): anxiety
- vervain (*Verbena officinalis*): nervous tension, sleep apnea

According to *Prevention* magazine, insomnia is the sixth most common condition treated with herbal formulas in the United States; it accounts for 18% of all use of herbal preparations. Some herbs used for insomnia are safer than others. Persons who are using alternative remedies, whether to treat insomnia or other conditions, should always tell their doctor what they are taking, how much, and how often. This warning is important because some herbal preparations that are safe in themselves can interact with prescription medications.

Dietary supplements and modifications

Some naturopaths recommend Vitamins B_6, B_{12}, and D for the relief of insomnia. **Calcium** and **magnesium** are natural sedatives, which helps to explain the traditional folk recommendation of drinking a glass of warm milk at bedtime. Tryptophan may relieve insomnia; as turkey is high in tryptophan, a turkey sandwich as a bedtime snack may be helpful. **Melatonin** is widely used to induce sleep although adequate studies of its effectiveness were lacking as of 2008.

Other treatments

A wide variety of other alternative treatments that may be helpful in treating sleep disorders include:

- Acupressure. The pressure points on both heels, the base of the skull, between the eyebrows, and on the inside of the wrists can be used to relieve insomnia.
- Acupuncture. The specific treatment for insomnia depends upon the cause.
- Aromatherapy. The use of essential oils of bergamot, lavender, basil, chamomile, neroli, marjoram, or rose promotes relaxation.
- Ayurvedic medicine. Ayurvedic remedies for insomnia include scalp and soles massage with sesame, brahmi, or jatamamsi oils, a warm bath, or a nutmeg ghee paste applied to the forehead and around the eyes. Nightmares are treated with scalp and soles massage with brahmi or bhringaraj oils, tranquility tea (jatamamsi, brahmi, ginkgo, and licorice root), and yoga. Sleep apnea is treated by changing sleep positions, humidifying the air, and nasya (nose drops) with warm brahmi ghee.
- Biofeedback. This technique can promote relaxation.
- Chinese medicine. Practitioners of traditional Chinese medicine usually treat insomnia as a symptom of excess yang energy. Either magnetite or "dragon bones" is recommended for insomnia associated with hysteria or fear.
- Chiropractic. Spinal manipulation can reduce stress upon the nervous system, thus allowing relaxation.
- Colored light therapy. Treatment with true green light can balance the nervous system and may relieve insomnia.
- Homeopathy. Homeopathic remedies are chosen according to the specific causes of insomnia. They may include: *Nux vomica* (alcohol or substance-related sleeplessness), *Ignatia* (emotional upset), *Arsenicum* (anxiety), *Passiflora* (mental stress, aches, and pains), and *Lycopodium* (talking and laughing during sleep).
- Light/dark therapy involves making the bedroom very dark at night and exposing the patient to early morning sunlight (or a light box).
- Low-energy emission therapy (LEET) is a clinically proven treatment for chronic insomnia. LEET treatment involves delivering electromagnetic fields through a mouthpiece.
- Massage. Therapeutic massage can relieve the muscular tension associated with chronic insomnia.
- Meditation. Regular meditation practice can counteract emotional stress.
- Reflexology. The use of the reflexology points for the diaphragm, pancreas, ovary/testicle, pituitary,

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

parathyroid, thyroid, and adrenal gland helps to relieve insomnia.

- Visualization may help to promote relaxation.
- Yoga can promote relaxation by releasing muscular tension.

Allopathic treatment

Treatment for a sleep disorder depends on its cause. In some cases, rearrangement of the bedroom or changes in sleeping arrangements may be all that is needed. Sedative or hypnotic medications are generally recommended only for insomnia related to a temporary **stress** because of the potential for addiction or overdose. Trazodone, a sedating antidepressant, is often used for chronic insomnia that does not respond to other treatments. Hypnotic agents include lorazepam, temazepam, and zolpidem. Other common prescription sleep aid drugs are zolpidem (Ambien, Ambien CR) and eszopiclone (Lunesta), both nonnarcotic sedatives. In most cases, Ambien and Lunesta do not cause next-day grogginess.

Bright-light therapy, which was originally introduced as a treatment for **seasonal affective disorder**, was being tried in 2008 as a treatment for insomnia in elderly adults. Although it has not been recognized by the U.S. Food and Drug Administration (FDA) as of 2008, this form of treatment does appear to benefit many patients. It is also used to treat circadian rhythm disorders, including shift-work sleep disorder. In addition, it does not involve medications, which are more likely to produce side effects in the elderly than in younger patients.

Narcolepsy is treated with such stimulants as dextroamphetamine sulfate, methylphenidate, or modafinil (Provigil). Periodic limb movement disorder (PLMD) and restless legs syndrome (RLS) have been successfully treated with three classes of drugs: benzodiazepines, Parkinson drugs, and narcotics. Clonazepam is the most commonly employed benzodiazepine treatment. Another prescription drug for PLMD and RLS is ropinirole (Requip).

Children with sleep terror disorder or sleepwalking are usually treated with benzodiazepines. Children with nightmare disorder may benefit from limits on violent or frightening television programs or movies.

Psychotherapy is recommended for patients with sleep disorders associated with other mental disorders.

Patients with sleep apnea or hypopnea are encouraged to stop **smoking**, avoid alcohol or drugs of abuse, and lose weight to improve the stability of the upper airway. In children and adolescents, removal of the tonsils and adenoids is a fairly common and successful treatment for sleep apnea. Most sleep apnea patients are treated with continuous positive airway pressure (CPAP). Sometimes an oral prosthesis is used for mild sleep apnea.

KEY TERMS

Apnea—The temporary absence of breathing.

Cataplexy—Sudden loss of muscle tone, often causing a person to fall.

Circadian rhythm—Any body rhythm that recurs in 24-hour cycles such as the sleep-wake cycle.

Dyssomnia—A primary sleep disorder in which the patient suffers from changes in the quantity, quality, or timing of sleep.

Hypersomnia—An abnormal increase of 25% or more in time spent sleeping.

Hypopnea—Shallow or excessively slow breathing usually caused by partial closure of the upper airway during sleep.

Narcolepsy—A lifelong sleep disorder marked by four symptoms: sudden brief sleep attacks, cataplexy, temporary paralysis, and hallucinations.

Nocturnal myoclonus—A disorder in which the patient is awakened repeatedly during the night by cramps or twitches in the calf muscles; also called periodic limb movement disorder (PLMD).

Parasomnia—A primary sleep disorder in which the person's physiology or behaviors are affected by sleep, the sleep stage, or the transition from sleeping to waking.

Polysomnography—Laboratory measurement of a patient's basic physiological processes during sleep.

Restless legs syndrome (RLS)—A disorder in which the patient experiences crawling, aching, or other disagreeable sensations in the calves that can be relieved by movement.

Sleep latency—The amount of time that it takes a person to fall asleep.

Expected results

The prognosis depends on the specific disorder. Natural remedies often require several weeks to have noticeable effects. Children usually outgrow sleep disorders. Narcolepsy, however, is a lifelong disorder.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Resources

BOOKS

Epstein, Lawrence, and Steven Mardon. *The Harvard Medical School Guide to a Good Night's Sleep*. New York: McGraw-Hill, 2006.

Krugman, Michael. *The Insomnia Solution: The Natural, Drug-Free Way to a Good Night's Sleep*. New York: Grand Central, 2005.

Linardakis, Nikos. *Ten Natural Ways to a Good Night's Sleep*. Layton, UT: Gibbs Smith, 2007.

Ross, Herbert. *Alternative Medicine Magazine's Definitive Guide to Sleep Disorders: 7 Smart Ways to Help You Get a Good Night's Rest*. San Francisco: Celestial Arts, 2007.

Van Houten, Peter. *Yoga Therapy for Overcoming Insomnia*. Nevada City, CA: Crystal Clarity, 2005.

PERIODICALS

Doheny, Kathleen. "Nine Natural Sleep Solutions: Everyday's A Dream After A Good Night's Rest, So Follow These Along Free Paths to Superior Slumber." *Natural Health* (April 2006): 74(6).

Feather, Kathryn. "Snooze or Lose: If You Are One of the 40 Million People in the U.S. Suffering from Sleep Problems Each Year, You Might Have a Sleep Disorder. You Don't Have to Suffer Through a Lifetime of Restlessness—Most Disorders Can Be Treated with a Few Simple Lifestyle Adjustments." *To Your Health* (February 2008): 20(4).

Lindsey, Robert L. "Wide Awake for Bedtime: Overstimulated by Popular Media and Caffeine, Today's Children Are Not Getting the Rest that They Need." *Sleep Review* (March 2008): 34(2).

Odell, Rachel. "Natural Sleep Aids." *Delicious Living* (August 2007): 16.

Robertshawe, Penny. "Massage Improves Sleep in Infants with Low Birth Weight." *Journal of the Australian Traditional-Medicine Society* (March 2007): 33.

Valenza, Tor. "Shifting into the Light: Light Therapy Can Be a Simple Solution for Circadian Rhythm Disorders." *Sleep Review* (November 2007): 50(2).

Wolkove, Norman, O. Elkholy, M. Baltzan and M. Palayew. "Sleep and Aging: Sleep Disorders Commonly Found in Older People." *Canadian Medical Association Journal* (April 24, 2007): 1299(6).

ORGANIZATIONS

American Academy of Sleep Medicine, One Westbrook Corporate Center, Suite 920, Westchester, IL, 60154, (708) 492-0930, http://www.aasmnet.org.

National Sleep Foundation, 1522 K St. NW, Suite 500, Washington, DC, 20005, (202) 347-3471, http://www.sleepfoundation.org.

Belinda Rowland
Ken R. Wells

Slippery elm

Description

Slippery elm (*Ulmus rubra*), known variously as Indian elm, sweet elm, red elm, and moose elm, is a deciduous tree native to North America, particularly the eastern and central United States and eastern Canada. Slippery elm is smaller in stature than other members of the Ulmaceae, or elm, family. There are about twenty species of elm. The slippery elm can grow 50-60 ft (15-18 m) in height with a trunk measuring one to four feet in diameter. Its exterior bark is dark brown, rough, and fissured. The mucilaginous inner bark is white with a distinctive scent. The tree flowers in early spring before it comes into leaf. Flowers bloom in dense and inconspicuous clusters at the tips of the branches that spread out into an open crown. The stigmas of the blossoms are bright red. The downy leaf buds are rust colored with orange tips. The alternate leaves are dark-green, hairy, and abrasive on top, and a lighter green, hairy, and less abrasive on the underside. Leaves are 4-7 in (10-18 cm) long and oblong to ovate with irregularly toothed margins. The seeds are contained in flat, round, paper-thin fruits and grow in clusters.

The slippery elm is a rare or threatened species in some parts of the United States, particularly in the northeastern U.S. where Dutch elm disease has devastated the elm forests. Its usual habitat is along stream banks and in woods. Harvesting the medicinally valuable and nutritious inner rind involves stripping the tree of large segments of the outer bark. This often results in the death of the tree, further diminishing its presence in the wild forests. Planting additional trees to replace those harvested is vital to the preservation this beneficial native American tree. The National Center for the Preservation of Medicinal Herbs lists slippery elm as one of the "at-risk botanicals."

Native American herbalists included the mucilaginous inner bark in their medicine bags, and found numerous other uses for the pliable slippery elm bark, including using the fiber for making canoes and baskets. Native American herbalists shared their herbal knowledge with the early colonists who came to rely on the slippery elm as one of their most valued home remedies. Midwives used slippery elm as a birth aid because its lubricant properties eased labor. Early settlers called the inner bark of the tree "slippery-elm food." The boiled bark was an important survival food for both the Native Americans and the colonists during times of famine. George Washington and his troops are believed to have subsisted for several days

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Slippery elm (Ulmus rubra). *(Organics image library / Alamy)*

on gruel made from slippery elm bark during the cold winter at Valley Forge, Pennsylvania. A poultice of the inner bark was a field dressing for gunshot wounds during the Revolutionary War.

General use

The dried inner bark of the slippery elm, known as the bast, is a calcium-rich, nutritive substance containing **bioflavonoids**, a high amount of mucilage, starch, a small quantity of tannins, and **vitamin E**. Slippery elm in various preparations acts as a demulcent, emollient, expectorant, diuretic, and is a soothing and nutritive tonic benefiting the adrenal glands, the respiratory system, and the gastrointestinal tract. The inner bark, taken as an infusion or syrup, has been used to treat **sore throat**, **laryngitis**, **bronchitis**, and stomach or duodenal ulcers. Slippery elm is a healing remedy once widely used to treat consumption, known now as **tuberculosis**, and typhoid fever. The mucilaginous substance in the inner bark is soothing to irritated tissues in the lungs, intestines, colon and urinary tract, and may be helpful in the treatment of **Crohn's disease**, an inflammation of the walls of the small intestines and colon. Slippery elm helps to draw out toxins from the body and assists the body in expelling mucus. It is beneficial externally in poultice form. When the inner bark is mixed with water, the soothing and emollient substance can be applied to the skin as a healing salve for numerous skin problems. It can be used for diaper rash , bed sores, **abscess**, burns, scalds, **infections**, and **boils**.

Slippery elm may be combined with other soothing herbs, such as **echinacea**, goldenseal, and **comfrey**, in a salve preparation to soothe and bring healing to inflamed and infected skin. A gruel or paste of slippery elm mixed with water is useful as a nutritive food for invalids who may be unable to keep down regular food. When an infusion of ginseng is used in place of the water, the tonic effect of this herbal food will be enhanced. Slippery elm was listed in the *U.S. Pharmacopoeia* and the *National Formulary* from 1820

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Antioxidant—An enzyme or other organic substance that is able to counteract the damaging effects of oxidation in living tissue.

Mucilaginous—Having a moist, soft, and sticky quality. The inner rind of slippery elm bark is an example of a mucilaginous plant product.

Poultice—A soft moist mass of cloth, often stuffed with herbs, applied warm as a treatment for wounds or injuries.

until 1960. The Food and Drug Administration has listed slippery elm as a safe and effective remedy for soothing throat and respiratory inflammations and as a digestive aid.

More recently, slippery elm has been studied as a possible antioxidant. **Antioxidants** are compounds that counteract **aging** and other destructive effects of oxidation in living tissue. One group of Korean researchers found that slippery elm extract inactivates peroxynitrite, an oxidizing compound that causes cell death. British researchers have also studied the antioxidant effects of slippery elm, which they think explains its effectiveness as a treatment for irritable bowel disease (IBD).

Preparations

Maude Grieve recommended in her 1931 book, *A Modern Herbal*, that only 10-year-old bark should be harvested. She listed numerous recipes for medicinal preparations using slippery elm bark in combination with other healing herbs for specific applications for many illnesses. The most common commercially available slippery elm products on the market today are in the form of throat lozenges and teas.

Powdered bark: Euell Gibbons, an American herbalist, suggested a way to prepare slippery elm for storage or use. Separate the inner rind from the outer bark and place the strips on an oven shelf at a very low temperature. Leave the door slightly ajar. When the inner rind is brittle, cut in to small pieces across the grain and put it through a food processor, one cupful at a time. Coarser material is useful in preparing a poultice. The finer powder is used for decoctions, syrup, or slippery elm "gruel."

Slippery elm "gruel": Slowly add fresh, cold water, a little at a time, to the finely powdered bark. Stir until the mixture reaches the consistency of a thick porridge. Sweeten with honey, and add cinnamon and **ginger** to taste. Refrigerate unused portions. Milk may also be used in place of water.

Infusion: Bring one pint of fresh, unchlorinated water just to the point of a boil. Pour over one ounce of the powdered slippery elm bark. Steep until the mixture is cool. Add lemon and honey to taste. Drink freely throughout the day.

Precautions

Use care when purchasing slippery elm products. Avoid those that are wildcrafted (harvested in the wild) to minimize depletion of this endangered American native tree.

Side effects

No known side effects have been reported.

Interactions

As of 2002, slippery elm has not been reported to interact with any prescription medications. it is best to take slippery elm several hours before or after other herbs or medications because of possible interference with speed of absorption.

Resources

BOOKS

Duke, James A. *The Green Pharmacy*. Emmaus, PA: Rodale Press, 1997.

Elias, Jason, and Shelagh Ryan Masline. *The A to Z Guide to Healing Herbal Remedies*. New York: Dell Books, 1995.

Medical Economics Company. *PDR for Herbal Medicines*, 1st ed. Montvale, NJ: Medical Economics Company, 1998.

Tierra, Lesley. *The Herbs of Life, Health & Healing Using Western & Chinese Techniques*. Santa Cruz, CA: The Crossing Press, 1997.

Tyler, Varro E., ed. *Prevention's 200 Herbal Remedies*. Emmaus, PA: Rodale Press, Inc., 1997.

PERIODICALS

Choi, H. R., J. Choi, Y. N. Han, et al. "Peroxynitrite Scavenging Activity of Herb Extracts." *Phytotherapy Research* 16 (June 2002): 364-367.

Langmead, L., C. Dawson, C. Hawkins, et al. "Antioxidant Effects of Herbal Therapies Used by Patients with Inflammatory Bowel Disease: An In Vitro Study." *Alimentary Pharmacological Therapy* 16 (February 2002): 197-205.

ORGANIZATIONS

American Herbalists Guild. 1931 Gaddis Road, Canton, GA 30115. (770) 751-6021. www.americanherbalistsguild.com.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

OTHER

Grieve, Mrs. M. "Elm, Slippery." *A Modern Herbal*. http://botanical.com/botanical/mgmh/e/elmsli09.html.

"Slippery Elm." http://www.mothernature.com/ency/Herb/Slippery_Elm.asp.

Clare Hanrahan
Rebecca J. Frey, PhD

Smoking

Definition

Smoking is the inhalation of the smoke of burning tobacco that is encased in cigarettes, pipes, and cigars. Casual smoking is the act of smoking only occasionally, usually in a social situation or to relieve **stress**. A smoking habit is a physical addiction to tobacco products. Many health experts now regard habitual smoking as a psychological addiction, too, and one with serious health consequences.

Description

The U.S. Food and Drug Administration (FDA) has asserted that cigarettes and smokeless tobacco should be considered nicotine delivery devices. Nicotine, the active ingredient in tobacco, is inhaled into the lungs, where most of it stays. The rest passes into the bloodstream, reaching the brain in about ten seconds and dispersing throughout the body in about 20 seconds.

Depending on the circumstances and the amount consumed, nicotine can act as either a stimulant or tranquilizer, which explains why some people report that smoking gives them energy and stimulates their mental activity, while others note that smoking relieves **anxiety** and relaxes them. The initial "kick" results in part from the drug's stimulation of the adrenal glands and resulting release of epinephrine into the blood. Epinephrine causes several physiological changes. It temporarily narrows the arteries, raises the blood pressure, raises the levels of fat in the blood, and increases the heart rate and flow of blood from the heart. Some researchers think epinephrine contributes to smokers' increased risk of high blood pressure.

Therapies for treating symptoms of smoking cessation

Treatment	Description	Symptom treated
Lobelia	Used as a nicotine substitute, it can bolster the nervous system, and can also be used as a physical relaxant	Withdrawal and craving
Wild oats or kava kava	Relaxant	Withdrawal
Licorice	Can be chewed to help withdrawal	Oral fixation
Hawthorn, gingko biloba, and bilberry	All contain bioflavonoids that can help repair free radical damage	Damage to lungs and cardiovascular system
Acupuncture	Stimulation of points in ears and feet helps cessation	Addiction and withdrawal
Vitamin C	Antioxidant that helps fight infection	Boosts immune system
Vitamin B_{12}	Helps protect body from disease	Smoking-induced cancers
Omega-3 fatty acids	Helps protect body from disease	Smoking-related illness, such as emphysema, and depression

(Illustration by Corey Light. Cengage Learning, Gale)

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Nicotine, by itself, increases the risk of **heart disease**. However, when individuals smoke, they ingest much more than nicotine. Smoke from a cigarette, pipe, or cigar is made up of many additional toxic chemicals, including tar and carbon monoxide. Tar is a sticky substance that forms deposits in the lungs, causing **lung cancer** and respiratory distress. Carbon monoxide limits the amount of oxygen that the red blood cells can convey throughout the body. Also, it may damage the inner walls of the arteries, which allows fat to build up in them.

Besides tar, nicotine, and carbon monoxide, tobacco smoke contains about 4,000 different chemicals. More than 200 of these chemicals are known to be toxic. Nonsmokers who are exposed to tobacco smoke also take in these toxic chemicals. They inhale the smoke exhaled by the smoker as well as the more toxic *sidestream* smoke—the smoke from the end of the burning cigarette, cigar, or pipe.

Sidestream smoke is actually more toxic than exhaled smoke. When individuals smoke, they inhale and then breathe out, leaving harmful deposits inside the body. But because lungs partially cleanse the smoke, exhaled smoke contains fewer poisonous chemicals. Thus, exposure to tobacco smoke is dangerous even for a nonsmoker, and smoke from a burning cigarette is more dangerous to the nonsmoker than exhaled smoke is.

Causes and symptoms

No one starts smoking to become addicted to nicotine. As of 2008, it was not known how much nicotine may be consumed before the body becomes addicted. However, once smoking becomes a habit, the smoker faces a lifetime of health risks associated with an addiction that has been shown to be stronger than alcohol addiction and at least as strong as narcotics addiction.

About 70% of smokers in the United States would like to quit; in any given year, however, only about 3.6% of the country's 47 million smokers quit successfully. The American Heart Association (AHA) estimates there are 26 million adult males and 21 million adult females in the United States who smoke. Additionally, the American Lung Association (ALA) estimates 4.5 million Americans under the age of 18 smoke. Worldwide, there are 1.3 billion smokers, according to the World Health Organization (WHO). About 5.4 million people worldwide die each year from smoking-related causes, WHO estimates. In China, WHO reports there are 300 million smokers, of which about 1.1 million die each year from smoking-related diseases.

Researchers suspect that genetic factors contribute substantially to developing a smoking habit. Several twin studies have led to estimates of 46 to 84% heritability for smoking. It is thought that some genetic variations affect the speed of nicotine metabolism in the body and the activity level of nicotinic receptors in the brain.

Smoking risks

Smoking is recognized as the leading preventable cause of death, causing or contributing to the deaths of approximately 440,000 Americans each year. Anyone with a smoking habit has an increased chance of lung, cervical, and other types of **cancer**; respiratory diseases such as **emphysema**, **asthma**, and chronic **bronchitis**; and cardiovascular disease, such as **heart attack**, high blood pressure, **stroke**, and **atherosclerosis** (narrowing and hardening of the arteries). The risk of stroke is especially high in female smokers who take birth control pills.

Smoking can damage fertility, making it harder to conceive, and it can interfere with the growth of the fetus during **pregnancy**. It accounts for an estimated 14% of premature births and 10% of infant deaths. There is some evidence that smoking may cause **impotence** in some men.

Because smoking affects so many of the body's systems, smokers often have vitamin deficiencies and suffer oxidative damage caused by free radicals. Free radicals are molecules that steal electrons from other molecules, turning the other molecules into free radicals and destabilizing the molecules in the body's cells.

Smoking is recognized as one of several factors that might be related to a higher risk of hip **fractures** in older adults.

Studies reveal that increased smoking correlates with increased likliness for illnesses such as cancer, chronic bronchitis, and emphysema. But even smokers who indulge in the habit only occasionally are more prone to these diseases.

Some brands of cigarettes are advertised as "low tar," but no cigarette is truly safe. If smokers switch to low-tar cigarettes, they are likely to inhale longer and more deeply to get the chemicals their body craves. Smokers have to quit the habit entirely in order to improve their health and decrease the chance of disease.

Though some people believe chewing tobacco is safer, it also carries health risks. People who chew tobacco have an increased risk of heart disease and mouth and throat cancer. Pipe and cigar smokers have

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

increased health risks as well, even though these smokers generally do not inhale as deeply as cigarette smokers do. These groups have not been studied as extensively as cigarette smokers, but there is evidence that they may be at a slightly lower risk of cardiovascular problems but a higher risk of cancer and various types of circulatory conditions.

Research reveals that passive smokers, or those who unavoidably breathe in secondhand tobacco smoke, have an increased chance of many health problems such as lung cancer, ischemic heart disease, and asthma; and in children, sudden infant death syndrome. Several studies in Europe and the United States have found that people who were exposed to secondhand tobacco smoke (ETS) as children were both more likely to develop asthma as adults and to become smokers themselves. The American Academy of Allergy, Asthma, and Immunology (AAAAI) reports that many parents cut down on or give up smoking when they recognized the damage that smoking causes to their children's lungs. A study of secondhand smoke in the workplace conducted by the European Union found that it can affect workers as severely as smoke in the home can affect children. The study noted that workers exposed to secondhand smoke from their colleagues had significantly higher rates of asthma and upper respiratory **infections** than those who were employed in smoke-free workplaces.

Smokers' symptoms

Smokers are likely to exhibit a variety of symptoms that reveal the damage caused by smoking. A nagging morning **cough** may be one sign of a tobacco habit. Other symptoms include shortness of breath, **wheezing**, and frequent occurrences of respiratory illness, such as bronchitis. Smoking also increases **fatigue** and decreases the smoker's sense of smell and taste. Smokers are more likely to develop poor circulation, with cold hands and feet and premature wrinkles.

Sometimes the illnesses that result from smoking come on silently with little warning. For instance, coronary artery disease may exhibit few or no symptoms. At other times, there will be warning signs, such as bloody discharge from a woman's vagina, a sign of cancer of the cervix. Another warning sign is a hacking cough, worse than the usual smoker's cough, that brings up phlegm (mucus) or blood, a sign of lung cancer.

Withdrawal symptoms

Individuals who try to quit may expect one or more of these withdrawal symptoms: **nausea**, **constipation** or **diarrhea**, drowsiness, loss of concentration, **insomnia**, **headache**, nausea, and irritability.

Diagnosis

It is not easy to quit smoking. That is why it may be wise for a smoker to turn to his physician for help. For the greatest success in quitting and to receive help with withdrawal symptoms, smokers should talk over a treatment plan with their doctor or alternative practitioner. Smokers should have a general physical examination to gauge their general health and uncover any deficiencies. They should also have a thorough evaluation for some of the serious diseases that smoking can cause.

Treatment

There are a wide range of alternative treatments that can help a smoker quit the habit, including **hypnotherapy**, herbs, **acupuncture**, and **meditation**. For example, a controlled trial demonstrated that self-massage can help smokers crave less intensely, smoke fewer cigarettes, and in some cases completely give up cigarettes.

Hypnotherapy

Hypnotherapy helps the smoker achieve a trance-like state, during which the deepest levels of the mind are accessed. A session with a hypnotherapist may begin with a discussion of whether the smoker really wants to and truly has the motivation to stop smoking. The therapist will explain how hypnosis can reduce the stress-related symptoms that sometimes come with kicking the habit.

Often the therapist will discuss the dangers of smoking with the patient and begin to reframe the patient's thinking about smoking. Many smokers are convinced they cannot quit, and the therapist can help persuade them that they can change this behavior. These suggestions are then repeated while the smoker is under hypnosis. The therapist may also suggest while the smoker is under hypnosis that his feelings of worry, anxiety, and irritability will decrease.

In a review of 17 studies of the effectiveness of hypnotherapy, the percentage of people treated by hypnosis who still were not smoking after six months ranged from 4% to 8%. In programs that included several hours of treatment, intense interpersonal interaction, individualized suggestions, and follow-up treatment, success rates were above 50%.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Aromatherapy

One study demonstrated that inhaling the vapor from black pepper extract can reduce symptoms associated with smoking withdrawal. Other **essential oils** can be used for relieving the anxiety a smoker often experiences while quitting.

Herbs

A variety of herbs can help smokers reduce their cravings for nicotine, calm their irritability, and even reverse the oxidative cellular damage done by smoking. **Lobelia**, sometimes called Indian tobacco, has historically been used as a substitute for tobacco. It contains a substance called lobeline, which decreases the craving for nicotine by bolstering the nervous system and calming the smoker. In high doses, lobelia can cause **vomiting**, but the average dose—about 10 drops per day—should pose no problems.

Herbs that can help relax a smoker during withdrawal include wild oats and **kava kava**.

To reduce the oral fixation supplied by a nicotine habit, a smoker can chew on **licorice** root, the plant, not the candy. Licorice is good for the liver, which is a major player in the body's **detoxification** process. Licorice also acts as a tonic for the adrenal system, which helps reduce stress. And there is an added benefit: If a smoker tries to light up after chewing on licorice root, the cigarette tastes like burned cardboard.

Other botanicals that can help repair free-radical damage to the lungs and cardiovascular system are those high in flavonoids, such as **hawthorn**, gingko biloba, and **bilberry**, as well as **antioxidants** such as **vitamin A**, **vitamin C**, **zinc**, and **selenium**.

Acupuncture

This ancient Chinese method of healing is used commonly to help beat addictions, including smoking. The acupuncturist uses hair-thin needles to stimulate the body's *qi*, or healthy energy. Acupuncture is a sophisticated treatment system based on revitalizing qi, which is believed to flow through the body in defined pathways called meridians. When a patient suffers from an addiction such as smoking, qi is not flowing smoothly or gets stuck, the theory asserts.

Points in the ear and feet are stimulated to help the smoker overcome the addiction. Often the acupuncturist will recommend keeping the needles in for five to seven days to calm the smoker and keep the person balanced.

Vitamins

Smoking seriously depletes vitamin C in the body and leaves it more susceptible to infections. Vitamin C can prevent or reduce free-radical damage by acting as an antioxidant in the lungs. Smokers need a higher dosage of vitamin C than nonsmokers. Fish in the diet supplies **Omega-3 fatty acids**, which are associated with a reduced risk of chronic obstructive pulmonary disease (emphysema or chronic bronchitis) in smokers. Omega-3 fats also provide cardiovascular benefits as well as an anti-depressive effect. Vitamin therapy does not reduce craving, but it can help beat some of the damage created by smoking. **Vitamin B_{12}** and **folic acid** may help protect against smoking-induced cancer. However, three clinical studies in the early 2000s reported that **beta carotene** (vitamin A), by itself, increased the risk of lung cancer in smokers. Hence, people who smoke or who have recently quit smoking were advised to avoid taking beta carotene supplements. The three studies were the Finnish Alpha-Tocopherol, Beta-Carotene Cancer Prevention study; the American Beta-Carotene and Retinol Efficacy Study; and the French E3N study. A 2004 study conducted by Yale University School of Medicine researchers found that smokers who took beta carotene in combination with other antioxidants had a 16% lower risk of lung cancer than those who took no supplements. The antioxidants used in the Yale study included those in the carotenoid and flavonoid nutrient groups along with selenium and **vitamin E**.

Allopathic treatment

Research shows that most smokers who want to quit benefit from the support of other people. It helps to quit with a friend or to join a group such as those organized by the American Cancer Society. These groups provide support and teach behavior modification methods that can help smokers quit. The smokers' physician can often refer them to such groups.

Other alternatives to help with the withdrawal symptoms include nicotine replacement therapy (NRT) in the form of gum, patches, nasal sprays, and oral inhalers. These are available by prescription or over the counter. A physician can provide advice on how to use them. They slowly release a small amount of nicotine into the bloodstream, satisfying the smoker's physical craving. Over time, the amount of gum the smoker chews is decreased and the amount of time between applying the patches is increased. This strategy helps wean smokers from nicotine slowly, eventually beating their addiction to the drug. But there is one important caution: If the smoker lights up while

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

taking a nicotine replacement, a nicotine overdose may cause serious health problems.

The prescription drug bupropion hydrochloride (Zyban) has shown some success in helping smokers quit. This drug contains no nicotine and was originally developed as an antidepressant. It is not known exactly how bupropion works to suppress the desire for nicotine. Its most common side effect is insomnia, which can also result from nicotine withdrawal.

As of early 2008, the final stages of clinical studies were being conducted on a vaccine to prevent nicotine addiction. The vaccine NicVAX is designed to immunize smokers against the nicotine rush that fuels their addiction. Two similar vaccines were in midstage testing: TA-Nic, by Bermuda-based Celtic Pharmaceuticals, and NicQb, developed by Cytos Biotechnology AG who sold the rights to the experimental vaccine to Switzerland-based Novartis AG. As of March 2008, it was not known when any of the vaccines would be ready to submit to the FDA for approval.

Expected results

Research on smoking shows that most smokers desire to quit. But smoking is so addictive that fewer than 20% of the people who try ever successfully break the habit. Still, many people attempt to quit smoking over and over again, despite the difficulties, the cravings and withdrawal symptoms, such as irritability and restlessness.

For those who do quit, the rewards of better health are well worth the effort. The good news is that once a smoker quits the health effects are immediate and dramatic. After the first day, oxygen and carbon monoxide levels in the blood return to normal. At two days, nerve endings begin to grow back and the senses of taste and smell revive. Within two weeks to three months, circulation and breathing improve. After one year of not smoking, the risk of heart disease is reduced by 50%. After 15 years of abstinence, the risks of health problems from smoking virtually vanish. A smoker who quits for good often feels a lot better too, with less fatigue and fewer respiratory illnesses.

Prevention

Experts suggest the following for smokers who want to break their habit:

- Have a plan and set a definite quit date.
- Get rid of all the cigarettes and ashtrays at home or at work.
- Do not allow others to smoke in the house.
- Tell friends and neighbors that you are quitting. Doing so helps make quitting a matter of pride.
- Chew sugarless gum or eat sugar-free hard candy to redirect the oral fixation that comes with smoking. This will prevent weight gain, too.

KEY TERMS

Antioxidant—Any substance that reduces the damage caused by oxidation, such as the harm caused by free radicals.

Chronic bronchitis—A smoking-related respiratory illness in which the membranes that line the bronchi, or the lung's air passages, narrow over time. Symptoms include a morning cough that brings up phlegm, breathlessness, and wheezing.

Cytochrome—A substance that contains iron and acts as a hydrogen carrier for the eventual release of energy in aerobic respiration.

Emphysema—An incurable, smoking-related disease, in which the air sacs at the end of the lung's bronchi become weak and inefficient. People with emphysema often first notice shortness of breath, repeated wheezing and coughing that brings up phlegm (mucus).

Epinephrine—A nervous system hormone stimulated by the nicotine in tobacco. It increases heart rate and may raise smokers' blood pressure.

Flavonoid—A food chemical that helps to limit oxidative damage to the body's cells and protects against heart disease and cancer.

Free radical—An unstable molecule that causes oxidative damage by stealing electrons from surrounding molecules, thereby disrupting activity in the body's cells.

Nicotine—The addictive ingredient of tobacco; it acts on the nervous system and is stimulating and calming.

Nicotine replacement therapy (NRT)—A method of weaning a smoker from both nicotine and the oral fixation that accompanies a smoking habit by giving the smoker smaller and smaller doses of nicotine in the form of a patch or gum.

Passive smoking—A person's having to breathe in smoke from someone else's cigarette or pipe. Other terms for passive smoking are exposure to secondhand smoke or exposure to environmental tobacco smoke (ETS).

Sidestream smoke—The smoke that is emitted from the burning end of a cigarette or cigar or that comes from the end of a pipe. Along with exhaled smoke, it is a constituent of secondhand smoke.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

- Eat as much as you want, but only low-calorie foods and drinks. Drink plenty of water. This may help with the feelings of tension and restlessness that quitting can bring. After eight weeks, individuals lose their craving for tobacco, so it is safe then to return to usual eating habits.
- Stay away from social situations that prompt one to smoke. Dine in the nonsmoking section of restaurants.
- Spend the money saved from not smoking on an occasional treat.

Resources

BOOKS

Botsford, David. *Hypnosis for Smoking Cessation: A NLP and Hypnotherapy Practitioner's Manual.* Bethel, CT: Crown House Publishing, 2007.

Denelsky, Garland Y. *Stop Smoking Now! A Cleveland Clinic Guide.* Cleveland, OH: Cleveland Clinic Press, 2007.

Miller, Barbara. *How to Quit Smoking Even If You Don't Want To.* Oxford, UK: Trafford, 2007.

Perkins, Kenneth A., et al. *Cognitive-Behavioral Therapy for Smoking Cessation: A Practical Guidebook to the Most Effective Treatments.* London: Routledge, 2007.

Wauters, Ambika. *The Homeopathy Bible: The Definitive Guide to Remedies.* New York: Sterling, 2007.

PERIODICALS

Dembrow, Myra. "How to Help Patients Stop the Smoking Habit: Chewing Tobacco Should Not Be An Alternative, New Research Confirms. An Expert from the CDC Tells What to Recommend—Or Prescribe—Instead." *Clinical Advisor* (January 2008): 45(2).

Geddes, Linda. "Teenage Smokers Face Badly Wired Brains." *New Scientist* (January 5, 2008): 10.

Hindo, Brian. "An Antismoking 'Call to Action': A New World Health Organization Study Calls for Regulation, Education, and Taxation to Combat Rising Smoking Rates in the Developing World." *Business Week Online* (February 8, 2008): N/A.

Vastag, Brian. "Smoking Ups Risk for Type 2 Diabetes." *Science News* (January 12, 2008): 29.

Wendling, Patrice. "Lung Damage from Secondhand Smoke Exposed." *Family Practice News* (January 1, 2008): 36.

Wendling, Patrice. "Reasons for Quitting Found to Vary According to Smoker's Age." *Skin & Allergy News* (February 2008): 66.

ORGANIZATIONS

American Association of Acupuncture and Oriental Medicine, PO Box 162340, Sacramento, CA, 95816, (866) 455-7999, http://www.aaaomonline.org.

American Cancer Society, 1599 Clifton Rd. NE, Atlanta, GA, 30329, (800) 227-2345, http://www.cancer.org.

American Lung Association, 61 Broadway, 6th Floor, New York, NY, 10006, (800) 548-8252, http://www.lungusa.org.

Canadian Cancer Society, 10 Alcorn Ave., Suite 200, Toronto, ON, M4V 3B1, Canada, (888) 939-3333, http://www.cancer.ca.

Barbara Boughton
Ken R. Wells

SMT *see* **Spinal manipulative therapy**

Sneezing

Definition

Sneezing, also known as sternutation, is the response of the mucous membrane of the nose to an irritant, or to a foreign body that causes allergy in a hypersensitive person.

Description

A sneeze is an involuntary, explosive burst of air from the nose and mouth that removes offending material from the nasal passages.

Causes and symptoms

Sneezing can occur from a number of causes, or may itself be a symptom of an underlying condition, most likely an allergy or **common cold**. Sneezing may simply be triggered by a small foreign object or substance in the nose, including particles of pepper, smoke, irritating chemical fumes, or gases. It may also be a symptom of a common cold, upper respiratory tract infection, **hay fever**, or other **allergies** to pollen, dust, dust mites, mold, dander, grass, or other substances. Additional potential causes of sneezing include withdrawal from opiate drugs, inhaling corticosteroids, **whooping cough**, or anaphylaxis. Many people sneeze when they step outdoors into bright sunlight. Others report sneezing whenever they tweeze their eyebrows.

In a January, 2000 paper in the journal *Neurology*, Dr. Mark Hersch of Australia's New South Wales University reported that some **stroke** patients find themselves temporarily unable to sneeze, leading to speculation that a "sneeze center" may exist in the medulla of the brainstem.

Diagnosis

An attempt to determine the cause of sneezing is likely to include an examination of the upper respiratory tract. A doctor might perform skin tests to

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

uncover any allergies, or antibody tests. In some cases, x rays are also useful.

Treatment

Herbs and supplements

Echinacea, Yin Chiao Chieh Tu Pien (a Chinese over-the-counter formulation), **zinc**, and **vitamin C** are all potentially useful against sneezing and other cold symptoms. Stinging **nettle** (*Urtica dioica*) and **red clover** (*Trifolium pratense*) may be used for allergies.

Homeopathy and acupuncture

Either of these disciplines may offer individualized relief. A local practitioner should be consulted. Homeopathic remedies may include *Allium cepa*, *Sabadilla*, ***Nux vomica***, *Euphrasia*, ***Natrum muriaticum***, and others.

Acupressure

Acupressure points that may be effective against sneezing include Large Intestine 4 (between the thumb and the index finger), Governing Vessel 26 (on the upper lip), and Triple Warmer 5 (on the forearm).

Relaxation

Some hay **fever** sufferers report benefits from hot baths, massage, and other **relaxation** therapies.

Allopathic treatment

This most commonly consists of over-the-counter antihistamines. Although these drugs often result in drowsiness, newer versions including Allegra and Claritin do not cause that problem.

Other treatment options may include an allergen-free diet, or a series of allergy shots, injecting increased amounts of an allergen to desensitize the body.

Expected results

Most commonly, sneezing is a mild and temporary problem. In those cases in which medical intervention is needed, the results are usually favorable, although allergy patients sometimes develop **asthma**.

Prevention

With allergies, the best way to prevent sneezing is to avoid exposure to allergens, the substances that provoke allergic attacks. Depending on the substance, this can be done by timely replacement of furnace filters, removing animals from the house, or even getting out of town during particularly sensitive seasons.

Handwashing and careful hygiene are good ways to avoid common colds and other **infections**.

Resources

ORGANIZATIONS

National Institute of Allergies and Infectious Diseases. 9000 Rockville Pike, Building 31, Room 7A-03, Bethesda, MD, 20205. (800) 644-6627. http://www.niaid.nih.gov/.

David Helwig

Snoring

Definition

Snoring is a sound generated during sleep by vibration of loose tissue in the upper airway.

Description

Snoring is one symptom of a group of disorders known as sleep-disordered breathing. It occurs when the soft palate, uvula, tongue, tonsils, and/or muscles in the back of the throat rub against each other and generate a vibrating sound during sleep. Twenty percent of all adults are chronic snorers, and 45% of normal adults snore occasionally. As people grow older, their chance of snoring increases. Approximately half of all individuals over 60 snore regularly.

In some cases, snoring is a symptom of a more serious disorder called obstructive **sleep apnea** (OSA). OSA occurs when part of the airway is closed off (usually at the back of the throat) while a person is trying to inhale during sleep, and breathing stops for more than 10 seconds before resuming again. These breathless episodes can occur as many as several hundred times a night.

People with OSA almost always snore heavily, because the same narrowing of the airway that causes snoring can also cause OSA. Snoring may actually contribute to OSA as well, because the vibration of the throat tissues that occurs in snoring can cause the tissue to swell.

Snoring is associated with physical problems as well as social **stress**. People who do not suffer from OSA may be diagnosed with socially unacceptable snoring (SUS), which refers to snoring that is loud enough to prevent the sleeper's bed partner or roommate from sleeping. SUS is a factor in the breakup of some marriages and other long-term relationships. Moreover, a study published in 2002 indicates that people who snore are at

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Ablation—The removal of abnormal tissue growths by surgery.

Cauterize—To seal tissue or blood vessels using a heat or electrical source.

Continuous positive airway pressure (CPAP)—A ventilation device that blows a gentle stream of air into the nose during sleep to keep the airway open.

Deviated septum—A hole or perforation in the septum, the wall that divides the two nasal cavities.

Endoscope—A slender optical instrument that allows a doctor to examine the inside of the throat or other hollow organ. Sleep endoscopy is a technique that allows the doctor to detect previously unsuspected obstructions in the patient's nose and throat.

Obstructive sleep apnea (OSA)—A potentially life-threatening condition characterized by episodes of breathing cessation during sleep alternating with snoring or disordered breathing. The low levels of oxygen in the blood of patients with OSA may eventually cause heart problems or stroke.

Polysomnography—A technique for diagnosing sleep disorders with the use of a machine that records the pulse, breathing rate and other variables while the patient sleeps.

Soft palate—The structure at the roof of the mouth that separates the mouth and the pharynx.

increased risk of developing type 2 diabetes. Snoring appears to be a risk factor that is independent of body weight or a family history of diabetes.

Causes and symptoms

There are several major causes of snoring, including:

- Excessively relaxed throat muscles. Alcohol, drugs, and sedatives can cause the throat muscles to become lax, and/or the tongue to pull back into the airway.
- Large uvula. The piece of tissue that hangs from the back of the throat is called the uvula. Individuals with a large or longer than average uvula can suffer from snoring when the uvula vibrates in the airway.
- Large tonsils and/or adenoids. The tonsils (tissue at the back of either side of the throat) can also vibrate if they are larger than normal, as can the adenoids.
- Excessive weight. Overweight people are more likely to snore. Their snoring is frequently caused by the extra throat and neck tissue they are carrying around.
- Nasal congestion. Colds and allergies can plug the nose, creating a vacuum in the throat that results in snoring as airflow increases.
- Cysts and tumors. Cysts and/or tumors of the throat can trigger snoring.
- Structural problems of the nose. A deviated septum or other nasal problems can also cause snoring.

Diagnosis

A patient interview, and possibly an interview with the patient's spouse or anyone else in the household who has witnessed the snoring, is usually enough for a diagnosis of snoring. A medical history that includes questions about alcohol or tranquilizer use; past ear, nose, and throat problems; and the pattern and degree of snoring will be completed, and a physical examination will be performed to determine the cause of the problem. This will typically include examination of the throat to look for narrowing, obstruction, or malformations.

In some cases the patient may be referred to a dentist or orthodontist for evaluation of the jaw structure and dentition.

In addition, the patient may be examined by sleep endoscopy. In this procedure, the patient is given a medication (midazolam) to induce sleep. His or her throat and nasal passages are then examined with a flexible laryngoscope. In many cases, sleep endoscopy reveals obstructions that are not apparent during a standard physical examination of the throat. Many patients are found to have obstructions at more than one level in their breathing passages.

If the snoring is suspected to be a symptom of a more serious disorder such as obstructive sleep apnea, the patient will require further testing. This testing is called a polysomnography study, and is conducted during an overnight stay in a specialized sleep laboratory. The polysomnography study includes measurements of heart rate, airflow at the mouth and nose, respiratory effort, sleep stage (light sleep, deep sleep, dream sleep, etc.), and oxygen level in the blood.

Treatment

There are a number of remedies for snoring, but few are proven clinically effective. Popular treatments include:

- Mechanical devices. Many splints, braces, and other devices are available which reposition the nose, jaw, and/or mouth in order to clear the airways. Other devices are designed to wake an individual when

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

snoring occurs. Patients should consult a dentist or orthodontist about these devices, as most require custom fitting. In addition, persons with certain types of gum disease or dental problems should not be fitted with oral appliances to stop snoring.

- Nasal strips. Nasal strips that attach like an adhesive bandage to the bridge of the nose are available at most drugstores, and can help stop snoring in some individuals by opening the nasal passages.
- Continuous positive airway pressure (CPAP). Some chronic snorers find relief by sleeping with a nasal mask that provides air pressure to the throat.
- Decongestants. Snoring caused by nasal congestion may be successfully treated with decongestants. Some effective herbal remedies which clear the nasal passages include golden rod (*Solidago virgauria*) and golden seal (*Hydrastis canadensis*). Steam inhalation of essential oils of eucalyptus blue gum (*Eucalyptus globulus*) or peppermint (*Mentha x piperata*) can also relieve congestion.
- Weight loss. Snoring thought to be caused by excessive weight may be curtailed by a sensible weight loss and exercise program.
- Sleep position. Snoring usually worsens when an individual sleeps on his or her back, so sleeping on one's side may alleviate the problem. Those who have difficulty staying in a side sleeping position may find sleeping with pillows behind them helps them maintain the position longer. Other devices include a new vest designed to prevent the sleeper from lying on his or her back.
- Bed adjustments. For some people, raising the head of the bed solves their snoring problem. A slight incline can prevent the tongue from retracting into the back of the throat. Bricks, wooden blocks, or specially designed wedges can be used to elevate the head of the bed approximately 4–6 in.

Alternative treatments that have been reported to be effective for patients whose snoring is caused by colds or **allergies** include **acupuncture**, **homeopathy**, and **aromatherapy** treatments. Aromatherapy treatments for snoring typically make use of marjoram oil, which is thought to be particularly effective in clearing the nasal passages.

Allopathic treatment

Several surgical procedures are available for treating chronic snoring. These include:

- Uvulopalathopharyngoplasty (UPPP), a surgical procedure which involves removing excess throat tissues (e.g., tonsils, parts of the soft palate) to expand the airway. The success rate of UPPP is about 53% after five years. The success of the surgery is related to the patient's body mass before the operation.
- Laser-assisted uvulopalatoplasty (LAUP) uses a surgical laser to remove part of the uvula and palate. Its chief drawback is a period of discomfort that lasts for about a week following surgery.
- Palatal stiffening is a minimally invasive surgical technique in which a laser or a cauterizer is used to produce scar tissue in the soft palate in order to stop the vibrations that produce snoring.
- Radiofrequency ablation is another technique that uses scarring to shrink the uvula and/or soft palate. A needle electrode is used to shrink and scar the mouth and throat tissues. Like other surgical treatments for snoring, radiofrequency ablation has a relapse rate over the long term. One of its advantages, however, is that it is less painful than other surgical treatments.

Prevention

Adults with a history of snoring may be able to prevent snoring episodes with the following measures:

- Avoid alcohol and sedatives before bedtime.
- Remove allergens from the bedroom.
- Use a decongestant before bed.
- Sleep on the side of the body, not the back.

Resources

BOOKS

"Disorders of the Oral Region." Section 9, Chapter 105 in *The Merck Manual of Diagnosis and Therapy*, edited by Mark H. Beers, MD, and Robert Berkow, MD. Whitehouse Station, NJ: Merck Research Laboratories, 1999.

Pascualy, Ralph A. and Sally Warren Soest. *Snoring and Sleep Apnea: Personal and Family Guide to Diagnosis and Treatment*. New York: Demos Medical Publishing, 1996.

Pelletier, Kenneth R., MD. *The Best Alternative Medicine*, Part I, Chapter 5, "Acupuncture," and Chapter 8, "Homeopathy." New York: Simon & Schuster, 2002.

Price, Shirley. *Practical Aromatherapy*, 3rd ed. London, UK: Thorsons, 1994.

"Sleep Disorders." Section 14, Chapter 173 in *The Merck Manual of Diagnosis and Therapy*, edited by Mark H. Beers, MD, and Robert Berkow, MD. Whitehouse Station, NJ: Merck Research Laboratories, 1999.

PERIODICALS

Al-Delaimy, W. K., J. E. Manson, W. C. Willett, et al. "Snoring as a Risk Factor for Type II Diabetes Mellitus: A Prospective Study." *American Journal of Epidemiology* 155 (March 1, 2002): 394-395.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Ayappa, I., and D. M. Rapoport. "The Upper Airway in Sleep: Physiology of the Pharynx." *Sleep Medicine Reviews* 7 (February 2003): 3–7.

Blumen, M. B., S. Dahan, I. Wagner, et al. "Radiofrequency Versus LAUP for the Treatment of Snoring." *Otolaryngology and Head and Neck Surgery* 126 (January 2002): 67-73.

Ellis, S. G., N. W. Craik, R. F. Deans, and C. D. Hanning. "Dental Appliances for Snoring and Obstructive Sleep Apnoea: Construction Aspects for General Dental Practitioners." *Dental Update* 30 (January-February 2003): 16–22, 24–26.

Hassid, S., A. H. Afrapoli, C. Decaesteker, and G. Choufani. "UPPP for Snoring: Long-Term Results and Patient Satisfaction." *Acta Otorhinolaryngologica Belgica* 56 (2002): 157-162.

Hessel, N. S., and N. de Vries. "Diagnostic Work-Up of Socially Unacceptable Snoring. II. Sleep Endoscopy." *European Archives of Otorhinolaryngology* 259 (March 2002): 158-161.

Maurer, J. T., B. A. Stuck, G. Hein, et al. "Treatment of Obstructive Sleep Apnea with a New Vest Preventing the Supine Position." [in German] *Deutsche medizinische Wochenschrift* 128 (January 17, 2003): 71–75.

Nakano, H., T. Ikeda, M. Hayashi, et al. "Effects of Body Position on Snoring in Apneic and Nonapneic Snorers." *Sleep* 26 (March 15, 2003): 169–172.

Remacle, M., E. Jouzdani, G. Lawson, and J. Jamart. "Laser-Assisted Surgery Addressing Snoring Long-Term Outcome Comparing CO_2 Laser vs. CO_2 Laser Combined with Diode Laser." *Acta Otorhinolaryngologica Belgica* 56 (2002): 177-182.

Stevenson, J. E. "Diagnosis of Sleep Apnea." *Wisconsin Medical Journal* 102 (2003): 25–27, 46.

Trotter, M. I., A. R. D'Souza, and D. W. Morgan. "Medium-Term Outcome of Palatal Surgery for Snoring Using the Somnus Unit." *Journal of Laryngology and Otology* 116 (February 2002): 116-118.

ORGANIZATIONS

American Academy of Otolaryngology, Head and Neck Surgery, Inc. One Prince Street, Alexandria, VA 22314-3357. (703) 836-4444. http://www.entnet.org.

American Academy of Sleep Medicine (AASM). One Westbrook Corporate Center, Suite 920, Westchester, IL 60154. (708) 492-0930. http://www.aasmnet.org.

American Dental Association. 211 East Chicago Avenue, Chicago, IL 60611. (312) 440-2500. http://www.ada.org.

American Sleep Apnea Association. *Wake-Up Call: The Wellness Letter for Snoring and Apnea.* 1424 K Street NW, Suite 302, Washington, DC 20005. (202) 293-3650. http://www.sleepapnea.org.

National Sleep Foundation. 1522 K Street, NW, Suite 500, Washington, DC 20005. http://www.sleepfoundation.org.

OTHER

American Sleep Apnea Association (ASAA). *Considering Surgery for Snoring?* http://www.sleepapnea.org/snoring.html.

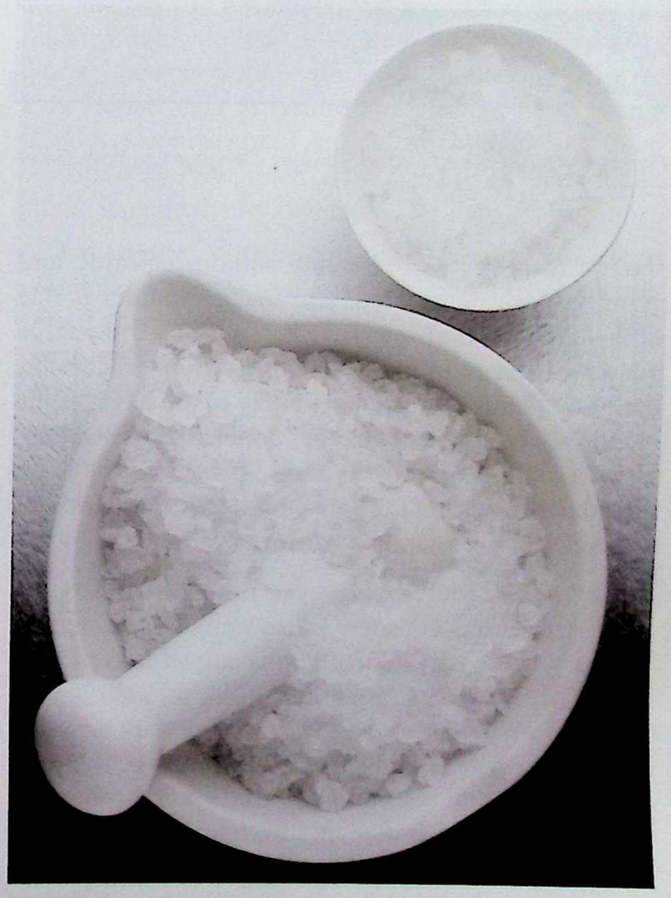
National Heart, Lung, and Blood Institute (NHLBI). *Facts About Sleep Apnea.* NIH Publication No. 95-3798. http://www.nhlbi.nih.gov/health/public/sleep/sleepapn.htm.

Paula Ford-Martin
Rebecca J. Frey, PhD

Sodium

Description

Sodium is a chemical element with atomic number 11 and atomic mass 22.98977. Its chemical symbol is Na, which comes from its Latin name, natrium. The best known compound of sodium is sodium chloride, also known as table salt. In the fields of medicine, health, and **nutrition**, the term sodium often refers to



Sea salt in pestle and mortar. *(© foodfolio / Alamy)*

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Recommended dietary allowance of sodium

Age	mg/day
Children 0-6 mos.	120
Children 7-12 mos.	370
Children 1-3 yrs.	1,000
Children 4-8 yrs.	1,200
Children 9-13 yrs.	1,500
Adolescents 14-18 yrs.	1,500
Adults 19-50 yrs.	1,500
Adults 51-70 yrs.	1,300
Adults ≥ 71 yrs.	1,200
Pregnant women	1,500
Breastfeeding women	1.500

Foods that contain sodium	mg
Table salt, 1 tsp.	2,300
Dill pickle, 1 large	1,731
Chicken noodle soup, canned, 1 cup	850-1,100
Ham, 3 oz.	1,000
Sauerkraut, 1/2 cup	780
Pretzels, 1 oz.	500
Turkey breast, deli, 1 oz.	335
Soy sauce, 1 tsp.	304
Potato chips, 1 oz.	165-185

mg = milligram

(Illustration by GGS Information Services. Cengage Learning, Gale)

sodium ions (Na^+), of which sodium chloride and many sodium compounds are made. Sodium is one of the minerals that the body needs in relatively large quantities. Humankind's taste for sodium reaches far back into the distant past, probably to the dawn of the human species. Much like in modern times, sodium was popular in antiquity as a food preservative and an ingredient in snacks. In some ancient societies, sodium chloride was even used as a form of currency.

In the 21st century, however, most Americans and other Westerners consume far too much sodium, and it is easy to see why. One obvious culprit is table salt, which has high sodium content. The mineral is also found in many favorite U.S. foods (or the chemicals used to preserve those foods). Sodium can be found in potato chips and a variety of other snacks, processed foods, meat, fish, butter and margarine, soft drinks, dairy products, canned vegetables, and bread, just to name a few sources. A single slice of pizza can supply the body with all the sodium it needs for one day (about 500 mg), while a teaspoon of table salt contains four times that amount.

A certain intake of sodium is essential to life. The mineral is a vital component of all bodily fluids, including blood and sweat. Often working in combination with other minerals such as **potassium**, sodium helps to manage the distribution and pH balance of these fluids inside the body and plays an important role in blood pressure regulation. Sodium is referred to as an electrolyte because it has a weak electrical charge when dissolved in bodily fluids. Due to this charge, sufficient amounts of the mineral are necessary for the normal functioning of nerve transmissions and muscle contractions. Sodium also helps the body to retain water and prevent dehydration, and it may have some activity as an antibacterial agent.

The important benefits associated with sodium become apparent in cases of sodium deficiency, which is relatively uncommon. Sodium deficiency is most likely to occur in cases of starvation, **diarrhea**, intense sweating, or other conditions that cause rapid loss of water and the sodium ions it contains from the body. People who suffer from low sodium levels may experience a wide range of bothersome or serious health problems, including digestive disorders, muscle twitching or weakness, **memory loss**, **fatigue**, and lack of concentration or appetite. Arthritis may also develop. These problems usually occur when fluids that belong in the bloodstream take a wrong turn and enter cells.

General use

Most Americans consume from 3,000 mg to 20,000 mg of sodium a day. These amounts are much more than the body needs to function at an optimal level. Many nutrition experts have been concerned about the rise in sodium intake in the general population since about the 1970s. Much of this increase is due to the popularity of fast foods and salty snacks, including the sale of high-sodium snack foods in school cafeterias and vending machines. The increased popularity of processed foods, almost all of which contain significant amounts of sodium, is another factor in this increase.

While sodium deficiencies are rare, supplements may be required in people with certain medical conditions such as Addison's disease, adrenal gland tumors, kidney disease, or low blood pressure. More sodium may also be needed by those who experience severe dehydration or by people who take diuretic drugs.

Although taking extra amounts of sodium is not known to improve health or cure disease, the mineral may have some therapeutic value when used externally. A number of medical studies suggest that

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

soaking in water from the Dead Sea may be beneficial in the treatment of various diseases such as **rheumatoid arthritis**, psoriatic arthritis, and **osteoarthritis** of the knees. Located in the Dead Sea Rift, directly south of the Sea of Galilee and between the West Bank and Isreal to the west and Jordan to the east, the Dead Sea is many times saltier than ocean water and rich in other minerals such as **magnesium**, potassium, and **calcium**. The use of mineral waters, such as those that make up the Dead Sea, to cure disease has a very long history. In many parts of the world bathing in saltwater at spas or baths with mineral waters has been a tradition for centuries.

Sodium is used by some people as a germ killer. Some people use solutions containing sodium compounds as an antibacterial mouthwash to combat microorganisms that cause **sore throat** or inflamed gums. Plain saltwater soaks have also been recommended as a remedy for sweaty feet. Salt is believed to have a drying effect by soaking up excess perspiration. In ages past, saltwater soaks were used to relieve sore or aching muscles.

Preparations

In the late 1990s the National Academy of Sciences established the recommended daily allowance (RDA) of sodium as between 1,100 and 3,300 milligrams.

To prepare a sodium mouthwash, a person mixes 1 tsp of table salt with a glass of warm water. The solution should be swished around in the mouth for about a minute, and then spit out. The solution should not be swallowed, as it contains about 2,000 mg of sodium.

Sodium is available in tablet form, but supplements should be taken only under the supervision of a doctor. As mentioned above, most people already get far too much sodium in their **diets**.

A trip to the Dead Sea is not necessary in order to enjoy its potential benefits. Dead Sea bath salts can be purchased.

Precautions

People who wish to take sodium supplements or increase their sodium intake should talk to a doctor first if they have high blood pressure (or a family history of the disease), congestive heart failure (or other forms of heart or blood vessel disease), hepatic **cirrhosis**, **edema**, **epilepsy**, kidney disease, or bleeding problems.

Studies investigating the role of sodium in the development of high blood pressure have produced mixed results. However, sodium is widely believed to contribute to the development of the disease in susceptible people. For this reason, most doctors and major health organizations around the world recommend a diet low in sodium. Eating a low-sodium diet may actually help to lower blood pressure, especially when that diet includes sufficient amounts of potassium.

A 20-year-long follow-up study to the National Health and Nutrition Examination Survey that was conducted between 1971 and 1975 reported in 2002 that high levels of sodium in the diet are an independent risk factor for congestive heart failure (CHF) in overweight adults. The authors of the study suggested that lowering the rate of sodium intake may play an important role in lowering the risk of CHF in overweight populations as well as individuals.

Another good reason for limiting one's intake of sodium is the link between high levels of dietary sodium and an increased risk of stomach **cancer**. This risk is increased if a person's diet is also low in fresh fruits and vegetables.

Apart from an increase in blood pressure, high levels of sodium may cause confusion, **anxiety**, edema, **nausea**, **vomiting**, restlessness, weakness, and loss of potassium and calcium.

People who are concerned about consuming too much sodium should try to keep their sodium intake below 2,300 mg per day, the level recommended by the U.S. Department of Health and Human Services and the U.S. Department of Agriculture in their 2005 *Dietary Guidelines for Americans*. Ways to reduce sodium intake include the following:

- Reading the Nutrition Facts labels on processed food items. The amount of sodium in a specific processed food, such as cake mix or canned soup, can vary widely from brand to brand.
- Retraining the taste buds. A taste for salt is acquired. A gradual decrease in the use of salt to season foods gives the taste buds time to adjust.
- Using other spices and herbs to season food.
- Cooking from scratch rather than using processed foods.
- Substituting fresh fruits and vegetables for salty snack foods.
- Tasting food at the table before adding salt. Many people salt their food automatically before eating it, which often adds unnecessary sodium to the daily intake.
- Choosing foods that are labeled low sodium or sodium free.
- Watching the sodium content of over-the-counter medications, and asking a pharmacist for information about the sodium content of prescription drugs.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Calcium—A mineral necessary for strong bones and the proper functioning of organs and muscles.

Diuretic—An agent that increases the production of urine.

Edema—Abnormal swelling of tissue due to fluid buildup. Edema, which typically occurs in the legs, liver, and lungs, is often a complication of heart or kidney problems.

Electrolytes—Substances in the blood, such as sodium and potassium, that help to regulate fluid balance in the body.

Restricting sodium intake is not usually recommended for women who are pregnant or breast-feeding.

Side effects

Dietary sodium is not associated with any bothersome or significant short-term side effects. In some people, however, salt tablets may cause upset stomach or affect kidney function.

Interactions

Excess intake of sodium may promote the loss of calcium and potassium from the body. In addition, sodium in the diet should be restricted for such medications as antihypertensives (drugs to control blood pressure) and anticoagulants (blood thinners) to be fully effective.

Resources

BOOKS

Haas, Elson M., and Buck Levin. *Staying Healthy with Nutrition, 21st Century Edition: The Complete Guide to Diet & Nutritional Medicine*. Berkeley, CA: Celestial Arts, 2006.

James, Shelly Vaughan, and Heidi McIndoo. *The Complete Idiot's Guide to Low Sodium Meals*. New York: Alpha Publishing Group, 2006.

Mostyn, Bobbie. *Pocket Guide to Low Sodium Foods*, 2nd ed. Olympia, WA: InData Publishing Group, 2006.

PERIODICALS

Derbyshire, E., and G. J. Davies. "Sodium: Can Infants Consume Too Much?" *Nutrition & Food Science* (June 2007): 400–405.

Ferrara, L. A., et al. "Fast Food Versus Slow Food and Hypertension Control." *Current Hypertension Reviews* (February 2008): 30–35.

O'Toole, Terrence P., et al. "Nutrition Services and Foods and Beverages Available at School: Results from the School Health Policies and Programs Study 2006." *Journal of School Health* (October 2007): 500–521.

Savage, L. C., and R. K. Johnson. "Labelling in Restaurants: Will It Make a Difference?" *Nutrition Bulletin* (December 2006): 332–338.

ORGANIZATIONS

American Heart Association, 7272 Greenville Ave., Dallas, TX, 75231, http://www.americanheart.org/.

Greg Annussek
Rebecca J. Frey, PhD
David Edward Newton, Ed.D.

Somatics

Definition

Somatics, from *soma*, a Greek word for living body, is a **movement therapy** that employs mind-body training to manage muscular **pain** and spasticity, improve balance and posture, and increase ease of motion. It presents an alternative to treatment by **osteopathy**, physical therapy, chiropractics, and/or **massage therapy**.

Origins

Somatic therapy was developed by Thomas Hanna in 1976. Hanna was a follower of Moshe **Feldenkrais**, a twentieth-century physicist whose self-named method is based on the philosophy that all movement, thought, speech, and feelings are a reflection of one's self-image. The Feldenkrais method is practiced in group sessions called Awareness Through Movement and in individual sessions called Functional Integration. Hanna, a former philosophy professor by training, became a Functional Integrationist. He also subscribed to the teachings of Hans Selye, a medical researcher who taught that physiological diseases have their origins in psychological causes, especially the presence of **stress**.

In creating what he called Hanna Somatic Education, Hanna hypothesized that the body's sensory-motor system responds to the stresses and traumas of daily life with specific muscular reflexes that become involuntary and habitual contractions. These contractions cause stiffness and soreness. Eventually, the individual suffers from sensory-motor amnesia (SMA), a loss of how muscles feel and how to control them.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Adhesive capsulitis—Adhesions and inflammation in the shoulder capsule that restrict movement.

Kinesiology—The study of the principles of mechanics and anatomy in relation to human movement.

Sacro-iliac—The joint at which the upper hip bone joins the backbone to the pelvis.

Sciatica—Pain along one of the two sciatic nerves that run from the pelvic area down the backs of the thighs to the feet.

Scoliosis—A lateral curvature of the spine.

Spinal stenosis—Pain and tension in the spine due to abnormal constriction.

Thoracic outlet syndrome—Spasticity of the muscles of the upper back, neck, and/or shoulders.

TMJ syndrome—Tightness and pain in the jaw and neck muscles.

Benefits

Practitioners believe that by re-educating the muscular system, somatic therapy can cure or relieve a variety of complaints including but not limited to adhesive capsulitis, arthritis, back pain, balance problems, dislocation of joints, displaced patella, **dizziness**, foot pain, frequent urination, hamstring pulls, headaches, joint pain, **obesity**, sacroiliac pain, **sciatica**, **scoliosis**, shoulder tightness and pain, spinal stenosis, **temporomandibular joint syndrome** (TMJ), thoracic outlet syndrome, uneven leg length, and whiplash. Somatic education is also taught to combat the decreased ease of motion associated with **aging**.

Description

Hanna named three reflexes that lead to SMA. The red light reflex (startle response) is a withdrawal response in the abdominal muscles in which the body curves in on itself in response to distress. The green light reflex (Landau arousal response) involves the back muscles and the action response in which the body is constantly thrusting forward in response to daily responsibilities. The trauma reflex occurs when the body suffers an injury.

Hanna theorized that because these reflexes are learned, they can be unlearned. To that end, he developed a series of exercises. During somatic education sessions, the individual is taught to release the chronic tension-holding patterns.

Somatic exercises are slow-motion movements performed in prone or sitting positions. During the various movements, the individual is instructed to be aware of the way his or her muscles feel at each step. Deep breathing techniques are also used at various stages.

The goal of the therapy is to teach the individual the ability to control muscle problems. Relief should occur within two to eight sessions. The effects are cumulative, increasing as flexibility and ease of movement improve. As the body gives up restricted physical patterns, it also tends to release rigid psychological habits.

After the education sessions, the individual is encouraged to continue the exercises on his or her own. Sessions can range from as little as 15 minutes per day to as long as three to four hours.

Sessions can cost between $50 and $175 each, depending on the practitioner's level of experience. Insurance coverage varies with the carrier but is more likely if a physician prescribes somatic therapy.

Gradual movement and awareness of the body are emphasized throughout Hanna Somatic Education.

- Always move slowly, gently, and without forcing the movement.
- Always focus your attention on the internal sensations of the movement.

Preparations

The exercises should be performed in a comfortable and quiet setting. Clothing should be loose and allow for easy movement. A floor mat or other comfortable surface is recommended.

Precautions

Before embarking on any type of therapy to relieve pain, a physician should be consulted. Severe pain in any part of the body could indicate serious disease or injury.

Side effects

There are no known adverse side effects to somatic therapy.

Research and general acceptance

The bulk of the research into the effects of somatic therapy has been conducted within the discipline itself. Not surprisingly, these studies show positive results across the board. Somatic education is a slow-growing field; there are currently less than 100 certified practitioners worldwide.

However, the scientific medical profession has conducted studies on the effects of various types of **exercise** on chronic musculoskeletal pain. Although

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

results are inconclusive, findings show that pain is minimized somewhat during the period in which the exercise is undertaken. In addition, preliminary research points to a possible link between muscles, memory, and emotion.

Training and certification

The Novato Institute for Somatic Research and Training, which Hanna founded in 1976 conducts a three-year training program that covers studies in anatomy, functional and structural kinesiology, physical evaluation, neurophysiology, and practical methods. Applicants must pass three annual exams in order to be certified. Admittance to the program is usually limited to individuals with training in related fields, particularly physicians, chiropractors, physical therapists, and certified massage therapists.

Resources

BOOKS

Credit, Larry P., Sharon G. Hartunian, and Margaret J. Nowak. *The Feldenkrais Method in Your Guide to Complementary Medicine*. Garden City, New Jersey: Avery Publishing Group, 1998.

Hanna, Thomas. *Somatics*. Reading, Massachusetts: Addison-Wesley, 1988.

ORGANIZATIONS

Novato Institute for Research & Training. 1516 W. Grant Avenue, Suite 212, Novato, California 94945. 415-897-0336. http://www.somatics.com/.

Mary McNulty

Sore throat

Definition

Sore throat, also called pharyngitis, is a painful inflammation of the back of the throat. It is a symptom of many conditions, but most often is associated with colds or **influenza**. Sore throat may be caused by either viral or bacterial **infections** or environmental conditions. Most sore throats heal without complications, but they should not be ignored because some develop into serious illnesses.

Description

Almost everyone gets a sore throat at one time or another, although children in child care or grade school have them more often than adolescents and adults. Sore throats are most common during the winter months when upper respiratory infections (colds) and influenza are more frequent.

Sore throats can be either acute or chronic. Acute sore throats are the more common. They may appear suddenly and last approximately three to about seven days. A chronic sore throat that is still present after three weeks may be a symptom of an unresolved underlying condition or disease, such as a **sinus infection** or **mononucleosis**.

KEY TERMS

Antigen—A foreign protein to which the body reacts by making antibodies

Conjunctivitis—An inflammation of the membrane surrounding the eye. Conjunctivitis is sometimes called "pinkeye."

Lymphocyte—A type of white blood cell. Lymphocytes play an important role in fighting disease.

Pharynx—The part of the throat that lies between the mouth and the larynx or voice box.

Toxin—A poison. In the case of scarlet fever, the toxin is secreted as a byproduct of the growth of the streptococcus bacteria and causes a rash.

Causes and symptoms

Sore throats have many different causes, and may or may not be accompanied by cold symptoms, **fever**, or swollen lymph glands. Proper treatment depends on identifying the cause.

Viral sore throat

Viruses cause 90–95% of all sore throats. Cold and flu viruses are the main culprits. These viruses cause an inflammation in the throat and occasionally the tonsils (**tonsillitis**). Cold symptoms usually accompany a viral sore throat. These can include a runny nose, **cough**, congestion, hoarseness, **conjunctivitis**, fever, and swollen lymph nodes in the neck. The level of throat **pain** varies from uncomfortable to excruciating, when it is painful for the patient to eat, breathe, swallow, or speak.

Another group of viruses that cause sore throat are the adenoviruses. These may also cause infections of the lungs and ears. In addition to a sore throat, symptoms that accompany an adenovirus infection may include cough, runny nose, white bumps on the tonsils and throat, mild **diarrhea**, **vomiting**, and a rash. The sore throat lasts about one week.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

A third type of virus that can cause severe sore throat is the coxsackie virus. It can cause a disease called herpangina. Although anyone can get herpangina, it is most common in children up to age 10 and is more prevalent in the summer or early autumn. Herpangina is sometimes called summer sore throat.

Three to six days after being exposed to the virus, an infected person develops a sudden sore throat that is usually accompanied by a fever usually between 102–104°F (38.9–40°C). Tiny grayish-white **blisters** form on the throat and in the mouth. These fester and become small ulcers. Throat pain is often severe, interfering with swallowing. Children may easily become dehydrated if they are reluctant to eat or drink because of the pain. In addition, people with herpangina may vomit, have abdominal pain, and generally feel ill and miserable.

Another common cause of a viral sore throat is mononucleosis. Mononucleosis occurs when the Epstein-Barr virus infects one specific type of lymphocyte. The infection may spread to the lymphatic system, respiratory system, liver, spleen, and throat. Symptoms appear 30–50 days after exposure.

Mononucleosis, sometimes called the kissing disease, is extremely common in young adults. It is estimated that by the age of 35–40, 80–95% of Americans will have had mononucleosis. Often, symptoms are mild, especially in young children, and are diagnosed as a cold. Since symptoms are more severe in adolescents and adults, more cases are diagnosed as mononucleosis in this age group. One of the main symptoms of mononucleosis is a severe sore throat.

Although a runny nose and cough are much more likely to accompany a sore throat caused by a virus than one caused by a bacteria, there is no absolute way to tell what is causing the sore throat without a laboratory test. Viral sore throats are contagious and are passed directly from person to person by coughing and **sneezing**.

Bacterial sore throat

From 5–10% of sore throats are caused by bacteria. The most common bacterial sore throat results from an infection by group A *Streptococcus*. This type of infection is commonly called **strep throat**, or GABHS pharyngitis. The acronym stands for "Group A beta-hemolytic streptococci." Anyone can get strep throat, but it is most common in school age children. Since there is a low risk of strep throat invading and damaging heart valves (**rheumatic fever**), it is important to see a doctor who may prescribe antibiotics to eliminate the risk.

Pharyngeal **gonorrhea**, a sexually transmitted bacterial disease, causes a severe sore throat. Gonorrhea in the throat is transmitted by having oral sex with an infected person.

Noninfectious sore throat

Not all sore throats are caused by infection. Postnasal drip from **allergies** and airborne irritants can cause sore throat. It can be caused by **hay fever** and other allergies that irritate the sinuses. Environmental and other conditions, such as heavy **smoking** or breathing secondhand smoke, breathing polluted air or chemical fumes, or swallowing substances that burn or scratch the throat can also cause pharyngitis. Dry air, like that in airplanes or from forced hot air furnaces, can make the throat sore. People who breathe through their mouths at night because of nasal congestion often get sore throats that improve as the day progresses. Sore throat caused by environmental conditions is not contagious.

Diagnosis

It is easy for people to tell if they have a sore throat, but difficult to diagnose its cause without seeing a doctor and laboratory tests. Most sore throats are minor and heal without any complications. A small number of bacterial sore throats develop into serious diseases. It is advisable to see a doctor if a sore throat lasts more than a few days or is accompanied by fever, **nausea**, or abdominal pain.

Diagnosis of a sore throat by a doctor begins with a physical examination of the throat and chest. The doctor will also look for signs of other illness, such as a sinus infection or **bronchitis**. Since both bacterial and viral sore throats are contagious and pass easily from person to person, the doctor will seek information about whether the patient has been around other people with flu, sore throat, colds, or strep throat. If it appears that the patient may have strep throat, the doctor will do laboratory tests.

One test that doctors are using more often in diagnosing a sore throat is the rapid antigen test. While a throat culture may require 2 days for the laboratory to identify the causative organism, a rapid antigen test gives results in a few hours.

If mononucleosis is suspected, the doctor may do a mono spot test to look for antibodies indicating the presence of the Epstein-Barr virus. The test in inexpensive, takes only a few minutes, and can be done in a physician's office. An inexpensive blood test can also determine the presence of antibodies to the mononucleosis virus.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Treatment

Effective treatment varies depending on the cause of the sore throat. As frustrating as it may be to the patient, viral sore throat is best left to run its course without drug treatment. Antibiotics have no effect on a viral sore throat. They do not shorten the length of the illness, nor do they lessen the symptoms.

Treatment uses anti-viral plants and herbs and vitamins to boost immunity and speed recovery.

- Aromatherapists recommend inhaling the fragrances of essential oils of lavender (Lavandula officinalis), thyme (*Thymus vulgaris*), eucalyptus (*Eycalyptus globulus*), sage (*Salvia officinalis*), and sandalwood.
- Ayurvedic practitioners suggest gargling with a mixture of water, salt, and turmeric (*Curcuma longa*) powder or astringents such as alum, sumac, sage, and bayberry (*Myrica* spp.).
- Herbalists recommend taking osha root (*Ligusticum porteri*)internally for infection or drinking ginger (*Zingiber officinale*) or slippery elm (*Ulmus fulva*) tea for pain.
- Homeopaths may treat sore throats with superdilute solutions (*Lachesis*, *Belladonna*, *Phytolacca*), yellow jasmine (*Gelsemium*), or mercury.
- Nutritional recommendations include zinc lozenges every two hours along with vitamin C with bioflavonoids, vitamin A, and beta-carotene supplements.

In the case of chronic sore throat, it is necessary to treat the underlying disease to heal the sore throat. If a sore throat is caused by environmental factors, the aggravating stimulus should be eliminated from the sufferer's environment. In the case of chronic sore throat in a child, the doctor may recommend a tonsillectomy (surgical removal of the tonsils).

Home care for sore throat

Regardless of the cause of a sore throat, there are some home care steps that people can take to ease their discomfort. These include:

- Gargling with warm double strength tea or warm salt water made by adding one teaspoon of salt to 8 oz of water.
- Drinking plenty of fluids, but avoiding acid juices like orange juice, which can irritate the throat. Sucking on popsicles is a good way to get fluids into children.
- Eating soft, nutritious foods like noodle soup and avoiding spicy foods.
- Refraining from smoking.
- Resting until the fever is gone, then resuming strenuous activities gradually.
- A room humidifier may make sore throat sufferers more comfortable.
- Antiseptic lozenges and sprays may aggravate the sore throat rather than improve it.

Allopathic treatment

Sore throat caused by a streptococci or another bacteria must be treated with antibiotics. Penicillin is the preferred medication. Oral penicillin must be taken for 10 days. Patients need to take the entire amount of antibiotic prescribed, even after symptoms of the sore throat improve. Stopping the antibiotic early can lead to a return of the sore throat. Sometimes a single injection of long-acting penicillin G is given instead of 10 days of oral treatment. These medications generally cost under $15.

Because mononucleosis is caused by a virus, there is no specific drug treatment available. Rest, a healthy diet, plenty of fluids, limiting heavy **exercise** and competitive sports, and treatment of aches with acetaminophen (Datril, Tylenol, Panadol) or ibuprofen (Advil, Nuprin, Motrin, Medipren) are the prescribed treatments. Nearly 90% of mononucleosis infections are mild. The infected person does not normally get the disease again.

Aspirin should not be given to children because of its association with increased risk for Reye's Syndrome, a serious disease.

Expected results

Sore throat caused by a viral infection generally clears up on its own within one week with no complications. The exception is mononucleosis. Ninety percent of cases of mononucleosis clear up without medical intervention or complications, so long as dehydration does not occur. In young children the symptoms may last only a week, but in adolescents the symptoms last longer. Adults over age 30 have the most severe and long lasting symptoms. Adults may take up to six months to recover. In all age groups **fatigue** and weakness may continue for up to six weeks after other symptoms disappear.

In rare cases of mononucleosis, breathing may be obstructed because of swollen tonsils, adenoids, and lymph glands. If this happens, the patient should immediately seek emergency medical care.

Patients with bacterial sore throat begin feeling better about 24 hours after starting antibiotics. Untreated strep throat has the potential to cause **scarlet fever**, kidney damage, or rheumatic fever. Scarlet fever causes

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

a rash, and can cause high fever and convulsions. Rheumatic fever causes inflammation of the heart and damage to the heart valves. Taking antibiotics within the first week of a strep infection will prevent these complications. People with strep throat remain contagious until after they have been taking antibiotics for 24 hours.

Prevention

There is no way to prevent a sore throat; however, the risk of getting one or passing one on to another person can be minimized by:

- Washing hands with warm water and soap frequently.
- Maintaining a balanced life with adequate sleep, nutrition, and personal fulfillment.
- Avoiding close contact with someone who has a sore throat.
- Not sharing food and eating utensils with anyone.
- Not smoking.
- Optimizing immune system by exercising and eating immune-boosting foods, such as carrots, yams, shiitake mushrooms, etc.
- Staying out of polluted air.

Resources

BOOK

Berkow, Robert. *The Merck Manual of Diagnosis and Therapy* Rahway, NJ: Merck Research Laboratories, 1992.

PERIODICALS

Larkin, Marilynn. "A Single, Rapid Test Suffices for Pharyngitis Diagnosis in High-Risk Patients." *Lancet* 358 (December 8, 2001): 1969.

National Institute of Allergy and Infectious Diseases. *Infectious Mononucleosis Fact Sheet* http://www.niaid.nih.gov/factsheets/infmono.htm (September 1997).

Kathleen Wright
Rebecca J. Frey, PhD

Soul revival *see* **Shamanism**

Sound therapy

Definition

Sound therapy refers to a range of therapies in which sound is used to treat physical and mental conditions. One of these therapies is **music therapy**, which can involve a person listening to music for conditions such as **stress** and muscle tension.

Music is one component of this therapy. Others use sound wave vibrations to treat physical and mental conditions. In general, this therapy is based on the theory that all of life vibrates, including people's bodies. When a person's healthy resonant frequency is out of balance, physical and emotional health is affected.

Treatment by sound waves is believed to restore that healthy balance to the body. Healing is done by transmitting beneficial sound to the affected area. The healing sound may be produced by a voice or an instrument such as electronic equipment, chanting bowls, or tuning forks.

Origins

Indigenous societies around the world have traditionally used sound in healing ceremonies, including drumming, hand-clapping, singing, dancing, and pulsating. The broad spectrum of sound therapy includes chanting, an activity long connected to healing and religion, and sounds of nature. Different sounds have elicited a variety of emotional responses and altered mental and physical states in people. One recent brain-imaging study found that spine-tingling music "lights up" the same parts of the brain that are stimulated by food, sex, and certain types of drugs.

For example, the chimes of a church bell pealed for such happy occasions as weddings and harvest festivals, and tolled slowly to announce a death. The connection between sound and healing was chronicled in 1896 when American physicians discovered that certain types of music improved thought processes and spurred blood flow. More advances in sound therapy came after World War II. Music therapy began in the 1940s, when it was used as part of rehabilitation treatment for soldiers.

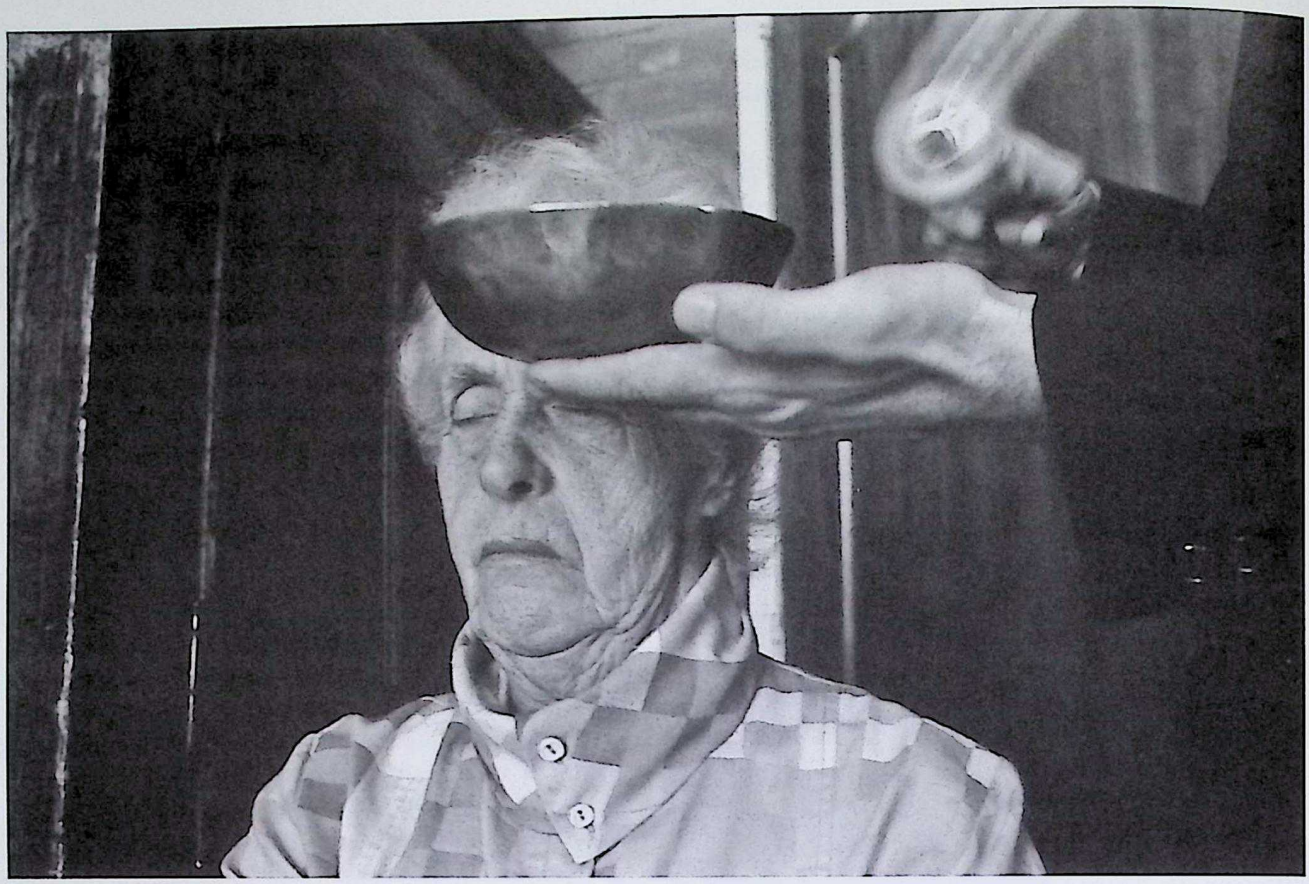
During the 1950s and 1960s, sound wave therapy developed in Europe. British osteopath Peter Manners developed a machine that treated patients with healing vibrations. The machine is placed on the area to be treated and a frequency is set to match the cells of a healthy body. Advocates believe that the treatment makes the body's cells vibrate at a healthy resonance.

By the 1990s, Manners had developed a computerized system with about 800 frequencies used to treat a range of conditions. Similar therapies are also known by names such as bioresonance and vibrational therapy. This therapy is used to treat such conditions as **cancer**.

After Manners developed cymatics, two ear specialists in France developed therapies that focus on listening. Dr. Alfred Tomatis' Tomatis method and Dr. Guy Berard's **auditory integration training**

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri



A practitioner of Tibetan sound therapy with patient. In this therapy, metal bowls are struck to produce specific sounds that are said to resonate in the body. *(© Photo Researchers, Inc. Reproduced by permission.)*

involve the patient listening to sounds through headphones. Currently, the Tomatis method is used to treat conditions ranging from learning disabilities to **anxiety** in both children and adults.

From the 1960s on, interest in alternative medicine and New Age healing has led to a wide variety of sound healing therapies. These range from the ancient practice of chanting and the use of singing bowls to vibro-acoustic furniture. A person sits or lies on a chair or bed and music is directed into the body. Benefits are said to include lowered blood pressure.

Benefits

Sound therapy focuses on balancing energy to treat a condition. Advocates maintain that sound therapy is effective in treating such conditions as stress, anxiety, high blood pressure, **depression**, and **autism**. Chanting and overtone chanting are used in therapy with Alzheimer's patients. This form of sound therapy is said to help with memory function. Some researchers think that music memories may outlast some other types of memories because music involves many parts of the brain.

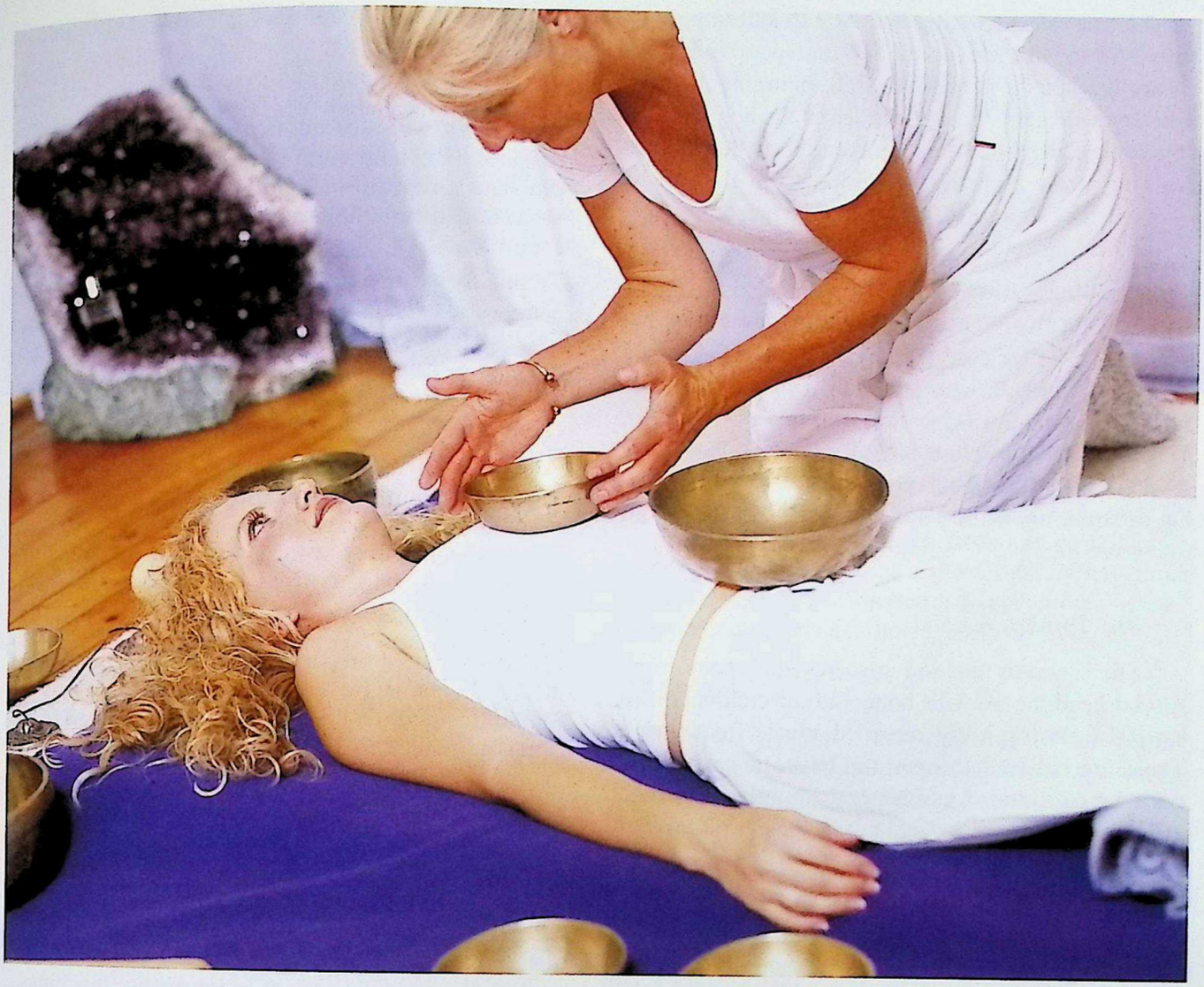
A newer form of sound therapy that is used with Alzheimer's patients is called multisensory or Snoezelen therapy. The name "Snoezelen" comes from two Dutch words that mean "to sniff" and "to doze." It was originally developed to treat disabled children by stimulating all the senses. Snoezelen therapy takes place in specially constructed rooms in which patients can, for example, produce music simply by walking in front of a sound beam. The sound beam, which looks like a microphone, "translates" the patient's movements into music. Other Snoezelen devices include fiber-optic cables that glow when patients wrap them around their bodies, and a chair that vibrates as it plays music through internal speakers. In this way, even deaf patients can "feel" the music as it plays. Snoezelen therapy has been found to reduce **pain** in Alzheimer's patients without the need for extra medication.

Physical conditions treated by sound therapy include pain during labor, muscle and joint pain like arthritis, back pain, sports injuries, soft tissue damage, and cancer.

The Tomatis method is used for conditions including **dyslexia**, attention deficit hyperactivity disorder (ADHD), Down syndrome, **chronic fatigue**

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri



Practitioner using singing bowls to relax and heal patient during sound therapy. *(Mauritius, GMBH / Phototake, Reproduced by permission.)*

syndrome, autism, depression, and behavioral problems. The method, also known as listening therapy, is used to help older people with coordination and motor problems. Furthermore, performers take the therapy to refine their skills.

Description

The spectrum of sound therapy is so broad that a person has many choices about the type of treatment and its cost. Some therapies can be done at home; others require a practitioner or therapist to perform the therapy or to provide initial instruction. As of 2002, most health plans did not cover the cost of any form of sound therapy, including music therapy. However, some sound therapies may be part of integrative treatment for a condition.

Chanting and toning

Chanting and toning are among the complementary therapies offered through the integrative medicine program at Memorial Sloan-Kettering Cancer Center in New York City. The program, which opened in April 1999, is one example of how the traditional medical community is incorporating alternative therapies into treatment.

People learn to reach a meditative state by producing a "pure" sound such as a drawn-out vowel. The chanting is said to produce a state of well-being in mind and body. The cost of therapy will vary since a person could take a class or workshop or opt for longer therapy. Treatment could involve weekly hour-long sessions over a period of several months.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Toning refers to using the voice to let out pain or stress. Sound healers point out that people do this naturally when they cry out or sigh. In toning therapy, a healer will help the patient learn healing sounds. Overtoning involves the therapist using his or her voice to assess a client's condition from the feet to the head. The therapist then treats the person by projecting healing sounds or "overtones."

Sounding, also known as toning, strives to improve vocal and listening abilities for emotional release and better communication. It was developed by Don Campbell, who established the Institute for Music, Health, and Education in Boulder, Colorado, in 1988. The discipline is being used in hospitals, schools, and educational centers to release stress. Toning or sounding is the way to massage the body from the inside out.

The Tomatis method

The Tomatis method involves the client using special headphones with bone and air conduction to listen to electronically recorded music frequencies. These are believed to open the brain to greater frequencies of sound. As of 2002, there were more than 250 Tomatis centers located around the world.

Furthermore, the Mozart Center in northern California began offering home treatment in the late 1990s. Treatment for the three-phase program cost $3,210 in mid-2000. Therapy lasted about three months and started with initial testing and instruction about how to use equipment.

The client used the equipment for two hours per day for 15 days. A diary was kept during that time, and a practitioner made weekly check-up calls. A month after therapy started, the practitioner returned to the home and reinstalled the equipment. The two-hour daily therapy continued for 10 days, along with the diary entries. The third phase of therapy continued six weeks later with 10 days of therapy and diary-keeping.

Vibrational therapy

Sound therapies like cymatics have been compared to **acupressure**. An instrument is placed on a point of the body and beneficial sound is directed at that point. The sound directed through the skin is believed to establish healthy resonance in unhealthy tissue.

Other forms of sound therapy

The spectrum of sound therapy includes such other treatments as:

- Audiotapes with special frequencies or music are designed for conditions ranging from AIDS to weight problems. Costs will vary. Some recordings are said to target both the emotional and physical aspects of these conditions.
- Tuning forks are used to give the person resonance. This is said to help the person relax and give balance. Costs vary.
- Hemi-sync therapy involves listening to synthesized sounds to balance both hemispheres of the brain. This is said to produce an altered state of consciousness.
- Adaptation of age-old instruments such as the Tibetan singing bowls. Sound from these bowls can be used in conjunction with chanting or meditation. Tibetan monks used bronze bowls.

Preparations

Pre-treatment preparation varies with the type of therapy to be undertaken. Some therapies such as the Tomatis method require an assessment and then treatment is administered. Other therapies can be taught by therapists and done at home. Some therapies require little or no training. Equipment such as audiotapes and chanting bowls can be purchased and used with minimal instruction.

Furthermore, organizations like the Sound Healers Association can provide information about training in other types of sound therapy. In addition, some companies sell equipment such as bioresonance machines.

Precautions

Although treatments like the Tomatis method and cymatics require training in those therapies, there are no certification programs for practitioners of other therapies.

While there is no danger from such therapies as chanting, other forms of sound therapy should not be undertaken until a doctor or health practitioner is consulted. People with pacemakers should not do cymatics.

Side effects

Sound therapy has produced no known side effects or complications.

Research and general acceptance

Sound therapy is so diverse that the amount of research and general acceptance in the United States is varied. Music therapy has been accepted within the traditional medical community. Other therapies such

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

as chanting and toning have been integrated into traditional treatment of cancer. Furthermore, some studies indicated that auditory integration training and the Tomatis method could be used for behavioral problems.

Much of the medical community remains dubious about the healing effects of treating patients' unhealthy cells with sound waves. Although a clinic or center may provide testimonials from cured patients, there has been no scientific research to prove this.

While the traditional medical community remains skeptical about some aspects of sound therapy, treatment has been undertaken by people around the world. Therapies are available in areas including North America, Europe, and Japan.

Training and certification

Unlike music therapy, in which the therapist must have a degree and pass a national board certification examination, there are no licensing and training requirements for sound therapists. However, some disciplines may require training in their therapies. The directors of Tomatis Centers are certified specialists in fields including music, speech therapy, and psychology. Furthermore, the Sound Healers Association provides training and sells a national directory of sound healers and other sound therapy items such as books and tapes.

Resources

BOOKS

Albright, Peter. *The Complete Book of Complementary Therapies*. Allentown, PA: People's Medical Society, 1997.

Gottlieb, Bill. *New Choices in Natural Healing*. Emmaus, PA: Rodale Press, Inc., 1995.

Nash, Barbara. *From Acupuncture to Zen: An Encyclopedia of Natural Therapies*. Alameda, CA: Hunter House, 1996.

Ortiz, John M. *The Tao of Music, Sound Psychology: Using Music to Change Your Life*. Samuel Weiser Inc., 1997.

Time-Life Books Editors. *The Alternative Advisor*. Alexandria, VA: Time-Life Books, 1997.

PERIODICALS

"Brain Health—Music and the Mind." *Harvard Health Letter* 27 (December 2001): np.

Green, Chris. "Light, Sound Prescribed for Pain Relief." *Capper's* 123 (October 16, 2001): 12.

ORGANIZATIONS

Memorial Sloan-Kettering Cancer Center. 1275 York Ave. 68th St., New York, NY 10021. (212) 639-2000. http://www.mskcc.org.

Mozart Center (Tomatis method). P.O. Box 76, Jenner, CA 95450. (707) 632-6976. http://www.mozartcenter.com.

Sound Healers Association. P.O. Box 2240, Boulder CO, 80306. (303) 443-8181. http://www.healingsounds.com/sha/sha-about.asp.

Telesound LTD. 31 Hall Green , Malvern, Worcestershire , UK, WR14 3QY. (0)1684 572506. E-mail: sales@telesound.co.uk. http://www.telesound.co.uk.

The Tomatis Method. http://www.tomatis.com.

Liz Swain
Rebecca J. Frey, PhD

South Beach diet

Definition

The South Beach diet is a three-phase, carbohydrate-restrictive diet. It emphasizes foods that are low on the glycemic index (GI) and low in saturated fat, such as lean meats, vegetables, cheeses, nuts, and eggs. Unlike other carbohydrate-restrictive **diets**, such as the Atkins and Zone diets, the South Beach diet promotes "good" carbohydrates, such as whole grains and fruit.

Origins

Arthur Agatston, the originator of the South Beach Diet, is a medical doctor. He has a cardiology practice that emphasizes disease prevention and is an associate professor at the University of Miami Miller School of Medicine in Miami, Florida.

Dr. Agatston first developed the South Beach Diet for his obese cardiac patients who were having trouble staying on the standard low-fat diet recommended by the American Heart Association. After these patients had success with his diet, Agatston began promoting the diet to the public, shifting the emphasis away from heart health and toward rapid weight loss. In 2003, he published *The South Beach Diet: The Delicious, Doctor-*

South Beach Diet products

Product	Calories per serving
Frozen entrees	360 or less
Frozen pizzas	330–350
Wrap sandwich kits	250 or less
Frozen breakfast wraps	200 or less
Cereal	110–210
Cereal bars	140
Meal replacement bars	210–220
Snack bars	100
Cookies and crackers	100 or less
Dressings	50–70
Steak sauce	5

(Illustration by GGS Information Services. Cengage Learning, Gale)

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Foods permitted in phase 1 of the South Beach Diet

Meat
- Veal and lean cuts of beef; low fat or fat free lunch meat

Poultry
- Skinless chicken
- Turkey breast
- Cornish hen

Seafood
- Any kind of fish or shellfish

Cheese
- Low fat and fat free only, excluding any type of cream cheese, except dairy-free cream cheese substitute

Tofu
- Soft low-fat or calorie reduced only

Eggs
- Whole eggs, egg substitute, egg whites

Vegetables
- Non-starchy, such as salad vegetables, excluding tomato, artichoke, asparagus, broccoli, cauliflower, collard greens, eggplant, mushrooms, turnips, and zucchini

Fats
- Olive oil
- Canola oil

Spices
- Any seasoning that does not contain sugar

Artificial sweetened treats and artificial sweetener
- Sugar free only and limited in amounts

(Illustration by Corey Light. Cengage Learning, Gale)

designed, Foolproof Plan for Fast and Healthy Weight Loss.. The book has sold more than a million copies since its publication, and remained on the *New York Times* bestseller list for over a year. Television coverage boosted the popularity of the South Beach Diet further, and in 2004, Kraft Foods entered into an agreement that allowed it to use the South Beach Diet name on line of foods that were nutritionally compatible with the diet.

Benefits

According to Agatston, benefits of the South Beach Diet include:

- rapid weight loss followed by lifetime weight control
- loss of weight from the belly region
- fewer hunger pangs because of slower carbohydrate breakdown and frequent small meals
- a heart-healthy approach to fats
- decreased risk of developing cardiovascular disease.

The initial rapid and significant weight loss is reported to be 8–13 lb(4–6 kg) in the first two weeks. After the first two weeks, weight loss continues at a slower rate, averaging 1–2 lb (0.4–1 kg) weekly. In addition to weight loss, the diet can reduce **cholesterol** and insulin levels, thus reducing the risk of diabetes and **heart disease**. Some people report that the diet is easy to follow because it is designed to eliminate cravings and has more flexible food options after the first two weeks.

Description

In his book, *The South Beach Diet*, Dr. Agatston states that "this diet is not low-carb. Nor is it low-fat." Instead, the diet focuses on eating the "good" carbohydrates (fruits, vegetables, and whole grains) and "good" fats (olive oil and nuts) rather than eliminating them from the diet entirely.

Dr. Agatston based the core of his dietary plan around the glycemic index (GI). The glycemic index compares foods on a scale of 1–100 for how much they increase the level of glucose (sugar) in the blood. When people eat, the level of glucose in their blood increases. How much it increases depends on the foods they eat. "Good" foods with a low glycemic index (below 50) raise blood sugar less than "bad" foods with a high glycemic index (above 50 or above 65 depending on which authority is consulted). When blood glucose levels increase, cells in the pancreas release the hormone insulin. This signals cells in the body to convert some of the glucose into a compound called glycogen that is stored in the liver and muscles and to convert some into fat, stored in fat cells. When blood glucose levels go down, different cells in the pancreas release the hormone glucagon. Glucagon signals cells in the liver and muscle to release glycogen, which is converted back into

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

glucose and is burned by the body. If glucose levels continue to be low, fat is also burned for energy.

When people eat foods that contain a lot of sugar or carbohydrates that break down rapidly in the body into glucose (the "bad" carbohydrates of the South Beach Diet) their insulin level spikes. When people eat carbohydrates that break down more slowly into glucose (the "good" carbohydrates of the South Beach Diet), their insulin level rises more slowly and does not reach as high a level. When someone eats too many sugary foods too often, they secrete a lot of insulin, and eventually cells in the body may become insulin resistant, which can lead to **atherosclerosis** and diabetes. According to Dr. Agaston, eating these low-GI foods reduces the risk of **insulin resistance**, and can even eliminate the body's craving for high-GI foods.

The South Beach diet consists of three phases. Phase one is the strictest part of the diet and lasts for two weeks. The purpose of Phase one is to banish the dieter's cravings for high-GI foods such as bread, rice, potatoes, pasta, and sugar. Alcohol, fruits, cereal, and such vegetables as carrots and corn are also restricted during phase one. Instead, protein-rich foods are emphasized, such as lean meat, fish, eggs, cheese and nuts. Some types of vegetables are also encouraged. Coffee and tea are allowed during this phase of the diet. Three regular-sized meals are eaten each day, supplemented by mid-morning and mid-afternoon snacks as well as dessert. During this period, the body chemistry is believed to change dramatically until cravings for high-GI foods are eliminated and insulin resistance is improved/lowered. In addition, rapid weight loss is typically experienced. The total calorie intake during phase 1 is usually between 1,200 and 1,400 per day.

Phase two reintroduces several of the restricted foods and encourages eating from all the dietary food groups, the expected result being that the body will neither crave high-GI foods nor store food as excess fat to the same degree. Such high-fiber carbohydrates as whole-wheat pasta and bread and most fruits are now permitted. Moderation remains the key to success for this phase and low-GI foods are strongly encouraged. Phase two continues until the dieter reaches his or her ideal weight, with weight loss ideally averaging one to two pounds per week.

Phase three, the ultimate goal, focuses solely on weight maintenance. Having reached the ideal weight, the diet now becomes a lifestyle from this point forward. Basic dietary techniques are still maintained. Only the high-GI foods and "bad" fats from the previous two phases continue to be restricted. Altered body chemistry will promote long-term cardiovascular health and reduce the risk of diabetes. Should weight gain occur, phase one of South Beach diet is reintroduced and the diet is begun again.

Preparations

There are no initial preparations required for the South Beach diet. However, as with all diets, dieters should consult with a physician before beginning the diet. Blood testing for insulin, glucose, and cholesterol levels is suggested. It is especially important for dieters taking medications for medical conditions such as heart disease to consult a physician before going on the South Beach diet. Similarly, diabetics on insulin or other medications are advised to have a doctor monitor their blood sugar regularly and determine if they are at risk of kidney impairment while on the diet. It is also recommended that a registered dietitian be consulted to determine the dietary needs of certain medical conditions, such as **pregnancy**.

Precautions

The South Beach diet is not recommended for people suffering from or at risk for kidney problems. The diet's high protein content can place increased strain on the kidneys, possibly causing long-term damage as well as **kidney stones** and bone loss. Additionally, the possibility of ketosis-induced dehydration during phase one can increase the risk of further kidney impairment. Dehydration occurs when the body experiences water loss with accompanying loss of important blood salts like **potassium** and **sodium**. Ketosis occurs when carbohydrates are not available and the body **burns** an excessive amount of fat, during which some ketones, or fat fragments, are excreted. The restrictive nature of phase one may also induce mineral and vitamin deficiencies. Remaining in phase one of the diet for longer than two weeks greatly increases the risk of losing bone and muscle mass. Dieters should remain in phase one for no longer than three or four weeks.

Some **nutrition** professionals express concerned that the South Beach diet menus, provided in the book, lack important nutritional information and detailed portion sizes as well as specific substitutes for foods the dieter cannot or will not eat. They suggest that these aspects, combined with the restrictive nature of the diet, can make sticking with the South Beach diet on a long-term basis difficult for some people. Additional objections include that limiting milk may lead to **calcium** deficiency and limiting and whole grains even in the maintenance phase may lead to deficiencies in dietary fiber and B-complex

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

vitamins. Also, some nutrition professionals assert that the diet does not emphasize an **exercise** regimen and that exercise is vitally important to avoid the loss of muscle and bone mass, especially during phase one of the diet.

Side effects

Despite Dr. Agatston's claims to the contrary, the South Beach diet is both a low carbohydrate and a low fat diet. For this reason, one main concern regarding the diet is the risk of ketosis, especially during phase one. Ketosis can cause such symptoms as dehydration, **dizziness**, heart palpitations, **fatigue**, lightheadedness, and irritability. **Hypoglycemia**, low blood sugar, headaches, and excessive fluid loss are also commonly associated with this diet. Cramping and tired muscles can be caused by salt depletion. Kidney function can be impaired, especially by the diet's high protein requirement, possibly leading to serious health issues. These side effects typically lessen or fade at the beginning of phase two when a more balanced diet is undertaken.

Research and general acceptance

The South Beach Diet is relatively new, and no independent scholarly research has been done on it. A few small studies that report decreased blood fats and similar heart-protective effects have been sponsored by organizations with South Beach Diet affiliations. However, nutritionists are in general agreement that replacing saturated fats with unsaturated fats in the diet is a healthy choice. The South Beach diet contains all the major food groups, promotes ingestion of "good" fats for maintaining heart health, and it is flexible enough to accommodate most dietary needs.

However, many clinicians and dietitians agree that the rapid initial weight loss results mostly from water weight loss. Much of this weight can return once the dieter rehydrates. Another important criticism by medical and nutritional professionals is the lack of evidence to support Dr. Agatston's claims connecting the consumption of low-GI foods and weight loss. They assert that at this time, there is no scientific proof that eating low-GI foods will have any more weight loss effect than eating a normal, calorie-reduced diet that includes carbohydrates; that Dr. Agatston also fails to take into account the interaction of different foods when eaten together, which can dramatically alter glucose metabolism; and that this means that utilizing the Glycemic Index as a gauge for what foods to eat is not only confusing but also slightly misleading.

KEY TERMS

Atherosclerosis—The process in which deposits of fatty substances, such as cholesterol, build up in the inner lining of an artery.

Carbohydrates—Neutral compounds of carbon, hydrogen, and oxygen found in sugar, starches, and cellulose.

Glycemic index (GI)—A numeric scale for measuring the level and speed of blood glucose increase that carbohydrate-containing food creates upon consumption.

Insulin—The hormone responsible for converting, in the blood, incoming nutrients into cells.

Insulin resistance—A metabolic state where the body's cells fail to respond properly to insulin, thus allowing high blood glucose levels to remain in the blood stream longer. This can produce hyperglycemia, diabetes, and other complications including high-blood pressure and elevated fat levels in the blood.

Ketosis—An abnormal increase in ketones (fat fragments) in the body, usually found in people with uncontrolled diabetes mellitus. Can cause serious side effects, including bad breath, dehydration, and kidney stones.

Resources

BOOKS

Agatston, Arthur. *The South Beach Diet: The Delicious, Doctor–designed, Foolproof Plan for Fast and Healthy Weight Loss.* New York: Rodale Press, 2003.

Agatston, Arthur. *The South Beach Heart Program: The 4-Step Plan That Can Save Your Life.* Emmaus, PA: Rodale, 2006.

Scales, Mary Josephine. *Diets in a Nutshell: A Definitive Guide on Diets from A to Z.* Clifton, VA: Apex Publishers, 2005.

PERIODICALS

Abel, Lee. "Somewhere on South Beach." *The Journal of the Arkansas Medical Journal.* (February, 2004): 255–256.

Center for Science in the Public Interest. "Weighing the Diet Books (Cover Story)." *Nutrition Action Healthletter.* (January/February, 2004):3–8.

Goodnough, Abby. "New Doctor, New Diet, but Still No Cookies." *New York Times.* (October 7, 2003): F1.

Harvard Medical School. "Sizing up South Beach." *Harvard Health Letter.* (November, 2003): 5.

Schnirring, Lisa. "The South Beach Diet." *Physician & Sports Medicine.* (January, 2004): 9–10.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

OTHER
Keefe, Sarah. "The Lowdown on the South Beach Diet." http://www.askmen.com/sports/foodcourt_100/102_eating_well.html. [cited May 22, 2004]
"The South Beach Diet." http://www.dietsurf.com/diet/south_beach_diet.htm.
"The South Beach Diet." South Beach Diet Online. http://www.southbeachdiet.com.

ORGANIZATIONS
American Dietetic Association, 120 South Riverside Plaza, Suite 2000, Chicago, Illinois, 60606-6995, (800) 877-1600, http://www.eatright.org.

Lee Ann Paradise

Fresh soy beans. *(© foodfolio / Alamy)*

Soy protein

Description

Soy protein is derived from the soya bean (*Glycine max*), which has been cultivated in Asia for centuries but only in the late twentieth century began to attain wide acceptance in the United States. In the natural product industry, soy has been a staple for years. In fact, soy protein is recognized as a dietary ingredient that has tremendous potential benefit.

General use

Soy protein is used in many forms for its health benefits, and claims of its benefits were substantiated beginning about 1985. More than 40 studies were conducted to gather human clinical data, which proved that soy helps to reduce the risk of **heart disease**, the number one killer in the United States. In October 1999, the United States Food and Drug Administration (FDA) allowed soy product manufacturers to claim that eating soy as a part of a low fat, low **cholesterol** diet may reduce the risk of coronary (heart) disease. The FDA recommends .9 oz (25 g) of soy protein per day.

The benefits of soy primarily come from its isoflavone content. Isoflavones are a type of antioxidant that combats cell damage. Genistein and daidzein, the isoflavones present in soy protein, possess antioxidant properties that protect LDL cholesterol from oxidation and are linked to the reduction of cholesterol. Studies have shown that soy protein reduced total cholesterol by 9.3% and lowered LDL (or so-called bad) cholesterol by almost 13%. Soy also raised HDL (or so-called good) cholesterol in the blood by over 2%. This is due to the structure of the amino acid in soy protein. Soy protein differs from meat protein and changes the way the liver creates and metabolizes cholesterol. Since high cholesterol levels are a major risk factor for the development of heart disease, the benefit of soy in reducing that health problem could be significant for a large segment of the population.

Soy also contains phytoestrogens (plant hormones) that mimic estrogen. This fact encourages promoters to tout the benefits of soy for relief of the symptoms of **menopause**. Studies show that eating 20 grams of soy daily for six weeks helps reduce **hot flashes** and other symptoms. Supporters also claim that soy may lower the risk of **osteoporosis**, Alzheimer's disease, **cancer**, and kidney disease. Unlike the claim for lowering cholesterol, none of these has been conclusively proven, nor has soy received FDA approval for these uses. Because of the potential estrogenic effects of soy proteins, the British Dietetic Association has recommended that soy-based infant formulas be used with extreme caution. They warn: "Dietitians should discourage the use of soya protein in children with atopy or cow's milk allergy in the first six months of life to avoid sensitization to soya protein and exposure to phytoestrogens while organ systems remain at their most vulnerable. This would include soy infant formula and soya products such as desserts, etc." Note that this warning is limited to soy protein and does not apply to other soybean products such as soy *lecithin*, which has been used as a cholesterol lowering agent. The United States FDA and the German Commission E have placed no limits on the use of this soy product and consider it safe, even for nursing mothers. In 2006, a panel of scientists was convened by the National Institutes of Health to look at scientific research regarding the safety of soy infant formula and genistein. The panel concluded there was

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

little or no evidence that genistein in infant soy formulas was unsafe. It also concluded that there is no evidence that soy formula leads to developmental or reproductive problems.

Cancer

In 2006 and 2007, two clinical studies indicated that soy consumption may reduce the risk of getting prostate and **breast cancer**. Researchers who studied more than 43,500 Japanese men aged 45–74 for 10 years reported in 2007 that those who consumed the highest amounts of soy products had a significantly decreased risk of getting **prostate cancer**. In 2006, researchers from the National Cancer Institute, part of the National Institutes of Health, reported that children, teens, and adults who consumed soy products had a decreased risk for breast cancer. The strongest effect was when soy consumption began in childhood, the researchers reported. The study of 1,500 Asian American women in Hawaii and California was conducted by university scientists in the two states. It showed that females who ate the most soy-based products during the ages of 5–11 reduced their risk of breast cancer by 58% compared to females who ate the least amount of soy products. The risk reduction in females aged 12 and older was 25%. Women who had the highest intake of soy consumed two servings of soy-based products per week compared to one serving per month in the group with the lowest intake. A difference in soy consumption is believed to explain why women in China and Japan have significantly lower rates of breast cancer than women in North America and Europe.

Preparations

Soy is available in a number of forms and is found in many foods:

- Tofu is soy bean curd. It can be used as a meat substitute in many dishes.
- Soy milk is a beverage that can replace cow's milk.
- Soy burgers are specially processed meat substitutes that use a base of soy protein. They may also contain vegetables, cheese, and spices to enhance flavor, but the primary base is usually soy. Some of these products may have a high salt content.
- Soy protein powders are used by mixing them into foods and beverages.
- Other processed soy products include soy dogs; soy corn dogs; soy imitation chicken patties, strips, and nuggets; and soy imitation sausage, turkey, ham, bologna, hamburger, steak, and bacon products.

KEY TERMS

Atopy—An allergy that is related to a genetic predisposition.

Fibrocystic disease—A common condition in middle-aged women, characterized by the growth of one or more cysts in the breasts. Cysts are small inclusions filled with fluid. These are harmless but may cause pain and tenderness.

Protein—A complex molecule that contains carbon, hydrogen, oxygen, nitrogen, and usually sulfur, which forms an amino acid chain. Proteins are essential for tissue growth and repair.

Soybean—The seed of the plant *Glycine max*.

It is important for consumers to realize that the FDA has only approved the cholesterol-lowering claim for products containing soy protein. Products that are labeled soy in general, or isoflavone tablets, cannot make this claim. There is not enough evidence to support claims that soy isoflavones alone lower blood lipid levels or reduce the risk of heart disease. Research has indicated that isoflavones must be present along with soy protein for the cholesterol lowering effect to take place. In addition, soy products must adhere to strict guidelines in order to make the claim that they are beneficial to a person's health. One serving of a product must contain at least 6.25 grams of soy protein, no more than 20 mg of cholesterol, less than 1 gram of saturated fat, no more than 3 grams of total fat, and no more than 480 milligrams of **sodium**.

Precautions

Some soy products may not meet the standards for the FDA's health claim because they are too low in soy protein or too high in saturated fat.

Some researchers warn that adding isoflavones to the diet of postmenopausal women may put them at risk for breast cancer. Researchers distinguish between soy protein and isoflavones and warn that taking isoflavone supplements could result in overdose. A maximum safe level of isoflavones had not been established as of 2008. In one study, 64 postmenopausal women who took soy protein supplements for one year showed a reduction in breast tenderness and *fibrocystic disease*.

Side effects

There is no concrete evidence of negative effects from incorporating additional food-based sources of soy protein into the diet. Soy **allergies**, however, are fairly common.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Resources

BOOKS

Babaknia, Ari. *Soy: The Right Protein.* Santa Ana, CA: Metro Digital Publishing, 2005.

Hoogenkamp, Henk W. *Soy Protein and Formulated Meat Products.* Wallingford, Oxfordshire, U.K.: CABI Publishing, 2005.

Sugano, Michihiro, ed. *Soy in Health and Disease Prevention.* Boca Raton, FL: CRC Press, 2005.

PERIODICALS

Hudson, Tori. "Soy and Cholesterol." *Townsend Letter: The Examiner of Alternative Medicine* (August/September 2006): 152(3).

Johnson, Kevin, et al. "Effects of Soy Protein-Based Formula in Full-Term Infants." *American Family Physician* (January 1, 2008): 87.

Kalman, Douglas, et al. "Effect of Protein Source and Resistance Training on Body Composition and Sex Hormones." *Journal of the International Society of Sports Nutrition* (July 23, 2007): 4.

Mangels, Reed. "Expert Panel Evaluates Soy Safety." *Vegetarian Journal* (July/August 2006): 16.

Stoppani, Jim. "The Secret of Soy: Attention: A Valuable Bodybuilding Nutrient Has Gotten a Bad Rap—Here, We Set the Record Straight on Soy Protein." *Flex*(November 2007): 270(5).

Theodore, Sarah. "Soy Gets Specific: Niche Markets Create New Opportunities for Soy Products." *Beverage Industry* (December 2006): 27(4).

ORGANIZATIONS

American Dietetic Association, 120 S. Riverside Plaza, Suite 2000, Chicago, IL, 60606, (800) 877-1600, http://www.eatright.org.

Dieticians of Canada, 480 University Ave., Suite 604, Toronto, ON, M5G 1V2, Canada, (416) 596-0857, http://www.dieticians.ca.

Soyfoods Association of North America, 1050 Seventeenth St. NW, Suite 600, Washington, DC, 20036, (292) 659-3520, http://www.soyfoods.org.

Vegetarian Resources Group, PO Box 1463, Baltimore, MD, 21203, (410) 366-8343, http://www.vrg.org.

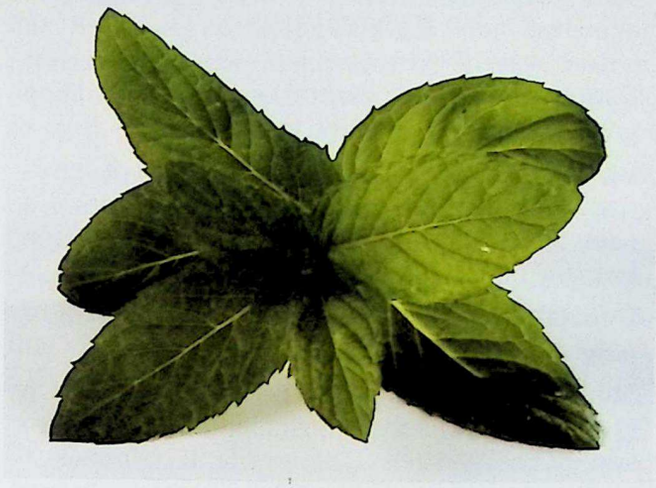
Amy Cooper
Ken R. Wells

Spastic colitis *see* **Irritable bowel syndrome**

Spearmint

Description

Spearmint, *Mentha spicata* (sometimes referred to *M. viridis* and *M. crispa*), is a Mediterranean native known from ancient times as an herb of hospitality. In the symbolism of plants, spearmint conveys wisdom. Common names for this aromatic herb include garden mint, lamb's mint, Our Lady's mint, spire mint, and **sage** of Bethlehem. The Romans brought mints to Britain, and English colonists brought spearmint and other mints to their settlements in North America.



Spearmint. *(© Arco Images / Alamy)*

Spearmint is one of at least thirty species in the extensive Lamiaceae, or mint, family. Only the members of the *Mentha* genus, however, are considered "true mints." Mints interbreed quite easily. There are hundreds of hybrids and varieties in this sprawling genus of aromatic herbs, and many have naturalized throughout North America.

A mint used in Chinese medicine is *M. arvensis*, commonly known as field mint or wild mint. The name in China for this highly variable species is *bo he*. This lilac-blossomed herb is used as a cooling remedy in the treatment of **influenza**, **sore throat**, inflammations of the eyes, and head colds. *M. arvensis* is widely prescribed by Chinese herbalists as a carminative (medication given to expel **gas** from the digestive tract) and stomachic (medication given to improve digestive functions). It is also effective in relieving some types of **headache**. In general, field mint is said to be helpful in stimulating movement of the *qi* or life energy that may become stagnated in the liver.

Some herbalists categorize *M. arvensis* and *M. canadensis* as wild mint, a native American species. The species *M. arvensis* var. *piperescens* is known as Japanese mint. It is widely cultivated as a primary commercial source of menthol.

Mints are hardy perennials which spread by underground runners. They may become troublesome weeds

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Carminative—Any medication or preparation given to expel gas from the digestive tract.

Carvone—The chemical compound that gives spearmint its characteristic flavor. Carvone is a pale yellow or colorless liquid when extracted from the plant.

Decoction—A herbal extract obtained by boiling parts of the plant in water or alcohol.

Stomachic—A medication or herbal preparation given to improve the functioning of the digestive system.

Volatile oil—The essential oil of a plant, usually extracted by steam distillation. The oil is called "volatile" because it evaporates at room temperature.

in the garden if not tended and controlled. Mints thrive in semi-shade and rich, moist soil. All mints have a square stem, with simple leaves growing in opposite pairs. Spearmint leaves are about two inches long, bright green, oblong or lance-shaped, veined and somewhat wrinkled, with unevenly toothed margins. The upper leaves are sessile, and the lower leaves have a short stalk. The herb is unbranched and grows in thick clumps in moist areas along roadsides, near streams, and in low meadows and pastures where it may reach a height of two to three feet. The flowers form in a cluster in the leaf axils at the tip of the purple or green stem, tapering nearly to a point. One or more flowering stems flank the central spike. Blossoms are a pale to deep violet color and bloom in July and August. The small, tubular flowers each have two long and two short stamens. The brown seeds are tiny and round.

Spearmint contains volatile oil, the flavonoid thymonin, caffeic acid derivatives, rosmaric acid, carvone, and limonene. Spearmint's distinctive, pungent aroma is attributed to the primary constituent of the volatile oil, the chemical carvone.

According to the United States Department of Agriculture (USDA), spearmint is regarded as an invasive weed only in Tennessee and other parts of the South. In the northern Plains states and parts of the Midwest, however, spearmint is raised as a cash crop; it is presently on the list of the 50 top cash crops in the United States. Researchers in Montana are studying spearmint, hoping to discover why it resists a plant disease known as verticillium wilt when **peppermint** is not resistant.

History

Like most medicinal herbs, the mints have found a place in ancient myth and legend. The generic name *Mentha* is derived from the story of the goddess Persephone, who was jealous of Pluto's love for the nymph Minthe, and transformed her rival into a common garden plant. The god Pluto, unable to retrieve the lovely Minthe, assured that her fragrance would waft on the garden breezes, releasing more of the pleasant aroma each time it was trod upon.

In the first century A.D., the naturalist Pliny suggested that students wrap a braid of mint around their heads to bring delight to the soul, thus benefiting the mind and enhancing their scholarship. Aristotle forbade mints to be used by soldiers prior to battle because he believed that the qualities of this herb might diminish their willingness to fight. The smell of "Spere Mynte," according to the herbalist John Gerard writing in 1568, "rejoiceth the heart of man." Mints were commonly used as strewing herbs, both for their fragrance and because they repel mice. Sprigs of fresh mint were also put in grain storage sacks to repel rodents. The steam vapor of infused mint was used to freshen the air in a sickroom. Mints were also used to scent bath water and to "strengthen the nerves and sinews," according to the herbalist Parkinson. Mints were used to whiten the teeth and in a wash to ease irritation of chapped hands. In the Middle Ages, when the **bites** of mad dogs must have been a common complaint, mints, particularly spearmint and peppermint, were among the many herbs recommended to treat the wounds. The mints were mixed with salt and applied directly to the bite. Mints were mentioned in the Bible as herbs the Pharisees used for tithing. Mints were a highly valued medium of exchange in those times. Refreshing mint teas were a popular drink during the time of the American Revolution because they were not taxed by the English; in fact, spearmint was an important cash crop in Connecticut at the time of the Revolution. The aromatic tea also enjoyed popularity during the Civil War when imported black teas were less available.

General use

The various mint species have many common chemical properties and beneficial actions. The fresh or dried leaves and the volatile oil, extracted by steam distillation, are the medicinally useful parts. Spearmint is slightly less medicinally potent than peppermint *M. piperita*, a popular and well-known hybrid of spearmint and water mint *M. aquatica*. Spearmint is used similarly to peppermint in medicinal preparations. These mints are particularly beneficial in relieving digestive

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

disorders, **colic**, and flatulence due to their carminative and antispasmodic actions, and may be helpful in the treatment of **irritable bowel syndrome**. Spearmint may also relieve **motion sickness**, **hiccups**, and **nausea**. The milder spearmint is a safe remedy when prepared as an infusion for children. Spearmint is diuretic and has been used to treat cases of suppressed or painful urination. It is high in vitamins A and C, and has been employed both to prevent and cure scurvy, to improve eyesight and reduce **night blindness**, and to bring a sparkle to dull eyes and a gloss to the hair. A vinegar decoction of spearmint applied as a hair rinse has been used to treat head sores. Spearmint is commonly used in culinary preparations, to season meat, fish, and vegetable dishes. Mints are also used to flavor candy, toothpaste, antacid medicines, chewing gum, shaving cream, liqueurs, and even cigarettes. Spearmint is the preferred herb used to prepare the traditional drink of the American South, the mint julep.

Recent research indicates that spearmint may have useful antibactericidal properties in addition to its traditional uses as a digestive aid. A group of Japanese researchers reported in 2001 that essential oil of spearmint showed significant bactericidal activity against such disease agents as *Staphylococcus aureus*, *Escherichia coli*, and *Helicobacter pylori*.

Spearmint is also being studied for its effectiveness in counteracting the damaging effects of oxidation in human and animal tissue. It has already been shown in animal studies to offer some protection against the growth of certain types of tumors.

Preparations

Spearmint should be harvested on a dry day, after the dew has evaporated and before the sun robs the plant of its volatile oil. The plant should just be coming into bloom. Stalks are cut a few inches from the ground, and any insect-damaged or brown leaves should be trimmed from the stem. The stalks should be tied in bundles and hung to dry in a warm, airy room out of direct sunlight. After the herb is crisply dry, the leaves are removed from the stems. The discarded stems may be added to a compost pile. The dried leaf is stored in clearly labeled, tightly sealed, dark-glass containers.

Infusion: Place 6 tbsp of fresh mint leaves in a warmed glass container. Bring 2.5 cups of fresh, non-chlorinated water to the boiling point, and add it to the herbs. Cover and infuse the tea for about five minutes. Strain and sweeten to taste. Mints may also be infused with warm milk for easing abdominal **pain**. The prepared tea will store for about two days in the refrigerator in a sealed container. Drink three cups a day. Spearmint combines well with white **horehound** (*Marrubium vulgare*) in infusions for feverish children. The infusion of spearmint may also be used as a gargle to soothe the throat and freshen the breath.

Tincture: Combine four ounces of finely-cut fresh, or powdered dry herb with one pint of brandy, gin, or vodka, in a glass container. The alcohol should be enough to cover the plant parts. Place the mixture away from light for about two weeks, shaking several times each day. Strain and store in a tightly capped, dark glass bottle. A standard dose is 10 to 30 drops of the tincture three times a day.

Essential oil: The essential oil is obtained by steam distillation of the fresh, flowering tops of the mint. A few drops on a sugar cube are a safe dosage several times a day. A few drops of oil added to water and applied externally will relieve **itching**, burns, insect bites, **scabies**, and other skin irritations. The essential oil may also be diluted with almond or sunflower oil for massage.

Precautions

Spearmint is a mild herb and generally considered safe. Some herbalists counsel against administering mint tea to young children, infants, and pregnant women. People with **hiatal hernia** or having an acute gallstone attack should not use spearmint.

Side effects

When spearmint is taken internally at normal dose levels, there are no side effects. The plant has, however, been reported to cause an allergic skin rash in some susceptible people.

Interactions

Preparations containing spearmint are believed to interfere with the beneficial action of homeopathic remedies when taken in close proximity. On the other hand, homeopaths in the United States disagree as of 2002 as to whether spearmint can antidote a remedy. Many maintain that if the remedy has been properly selected by the practitioner, there will be no interference from mint-flavored products.

Resources

BOOKS

Duke, James A. *The Green Pharmacy*. Emmaus, PA: Rodale Press, 1997.

PDR for Herbal Medicines, 1st ed. Montvale, NJ: Medical Economics Company, 1998.

Pelletier, Kenneth R., MD. *The Best Alternative Medicine*, Part I: Homeopathy. New York: Simon & Schuster, 2002.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Reid, Daniel. *Chinese Herbal Medicine*. Boston, MA: Shambhala, 1996.

Tyler, Varro E., ed. *Prevention's 200 Herbal Remedies*. Emmaus, PA: Rodale Press, Inc., 1997.

PERIODICALS

Bonamonte, D., L. Mundo, M. Daddabbo, and C. Foti. "Allergic Contact Dermatitis from *Mentha spicata* (Spearmint)." *Contact Dermatitis* 45 (November 2001): 298.

Imai, H., K. Osawa, H. Yasuda, et al. "Inhibition by the Essential Oils of Peppermint and Spearmint of the Growth of Pathogenic Bacteria." *Microbios* 106 (2001) (Supllement 1): 31-39.

Saleem, M., A. Alam, and S. Sultana. "Attenuation of Benzoyl Peroxide-Mediated Cutaneous Oxidative Stress and Hyperproliferative Response by the Prophylactic Treatment of Mice with Spearmint (*Mentha spicata*)." *Food Chemistry and Toxicology* 38 (October 2000): 939-948.

ORGANIZATIONS

Institute of Traditional Medicine. 2017 SE Hawthorne Blvd., Portland, OR 97214. (503) 233-4907. www.itmonline.org.

National Center for Homeopathy. 801 N. Fairfax St., Suite 306, Alexandria, VA 22314. (703) 548-7790.

United States Department of Agriculture. Washington, DC 20250. www.usda.gov.

OTHER

"*Mentha arvensis Linn.*" www.modern-natural.com/mentha_arvensis.htm.

Taylor, Suzi. "Young Scientists Wage War on Wilt." *Montana State University News*, May 24, 2002. www.montana.edu.

Clare Hanrahan
Rebecca J. Frey, PhD

Spinal manipulative therapy

Definition

Spinal manipulative therapies are those that a therapist will work on the human skeleton, particularly the spinal area, to relieve muscular or skeletal **pain**, relieve tension, improve the mobility of joints and, in the case of the oriental therapies, to "unblock energy channels." The idea behind spinal manipulation is that when the vertebrae are subluxated (misaligned), the resulting pressure on nerves can influence negatively organ system function and general health, in addition to interrupting proper joint motion.

KEY TERMS

Neuralgia—Severe nerve pain.

Osteopathic manipulative treatment (OMT)—A collective term that refers to the variety of hands-on manipulative techniques practiced by osteopaths to diagnose and prevent disorders as well as to treat them.

Sciatica—Pain along the course of the sciatic nerve, running from pelvis down the back of leg to the foot caused by a compression or irritation of the fifth lumbar spinal root.

Tinnitus—Ringing or other noises in the ears, sometimes caused by skeletal misalignment.

Origins

Forms of manipulative therapy have been used for thousand of years in Asia. The nineteenth century, however, saw the introduction of many new forms of manipulative therapy in the West. The best known and most widely used of these approaches are **osteopathy** and **chiropractic**. Most areas and societies have some tradition of manipulation or massage and osseous adjustments.

Benefits

Osteopathy and chiropractic in particular have been used to relieve spinal pain and immobility. Both of these therapies can be used in cases of a "slipped disk," and are also used after accidents or surgery to restore mobility. Osteopathy and chiropractic can treat problems of the bones, muscles, joints, or ligaments. They have been used in the treatment of headaches of nervous origin, and even **osteoarthritis**. Athletes and dancers commonly seek osteopathic or chiropractic treatment for sports or occupational injuries to restore function.

Description

A common practice among the spinal manipulative therapies is that the therapist will generally work on patients while they are lying on a special treatment couch adjusted to the height of the practitioner. The therapies vary from light touching to fairly vigorous manipulation.

The cost of treatment across the various disciplines varies a great deal according to the practitioner's level of qualification, the area of competence, and other factors.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Osteopathy

Osteopathy was founded by an American doctor, Andrew Taylor Still. He applied his engineering study and detailed knowledge of human anatomy to the treatment of the human body. He deduced that since misalignment of the skeleton could cause illness, manipulation could theoretically restore good health. The manipulative techniques that Still recommended are commonly referred to as Osteopathic Manipulative Treatment (OMT). OMT is a form of noninvasive, "hands-on" care used for prevention, diagnosis, and treatment to reduce pain and restore motion, as well as help the body heal itself. OMT may be used to facilitate the movement of body fluids and normal tissue functioning, and release painful joints or dysfunctional areas. These therapies take different forms depending on patient needs. In addition to OMT, Dr. Still emphasized the importance that a nutritious diet and overall physical fitness play in maintaining good health. Osteopathy is now widely accepted by the allopathic medical profession, to the extent that they often refer patients to an osteopath. In fact, as of 2002, osteopaths were the fastest growing segment of the total population of physicians and surgeons in the United States.

Chiropractic

Chiropractic was developed by a "magnetic healer," Daniel David Palmer, who founded the Palmer School of Chiropractic. This therapy aims to treat pain and other disorders caused by misalignment of the skeleton with manipulation. Upon consultation with a chiropractor, the patient will be asked for a detailed medical history. The chiropractor may take a set of x rays to obtain a more accurate picture of the condition of the patient's spine. The consultant will decide what form the treatment should take, and treatment will begin on a subsequent visit.

Conditions that may benefit from manipulative treatment:

- whiplash injuries
- immobility of the spine due to arthritis
- strain injuries
- immobility due to previous injuries
- muscular problems
- sciatica
- poor posture
- tinnitus
- neuralgia
- partial paralysis due to stroke
- cerebral palsy

Preparations

Generally, no special preparation is required prior to treatment with the various kinds of spinal manipulative therapy, but some practitioners insist on x rays before treatment.

Precautions

The licensing credentials of spinal manipulation practitioners should always be checked. They should also be given any information regarding the health of the patient that may be relevant or affect treatment.

Side effects

In the presence of serious spinal problems, damage could result if the practitioner is not properly qualified. A registered practitioner should always be consulted, and should be made aware of all relevant patient information.

Research and general acceptance

Osteopathy and chiropractic are now well accepted as options for the treatment of back pain and many types of sports injuries. The field of sports medicine has found particular benefit in osteopathic practitioners because of their emphasis on the musculoskeletal system, manipulation, diet, **exercise**, and fitness. Many professional sports team physicians, Olympic physicians, and personal sports medicine physicians are osteopathy physicians (DOs).

Training and certification

Osteopathy

Fully qualified osteopaths undergo four years of post-collegiate training in a college of osteopathy. They must pass state licensing examinations, and are entitled to use MRO (Member of the Register of Osteopaths) after their name. A DO is one of only two types of qualified physician in the United States, the other being an MD (allopathic physician). DOs are qualified to practice surgery, prescribe medications, and offer the same health care services that their allopathic counterparts are. The chief difference between the two groups of physicians is that MDs are more likely to enter specialized branches of medicine, while most DOs enter primary care practice.

Many aspects of traditional osteopathic philosophy, such as advice about diet and **smoking**, have entered mainstream medicine to the point that the

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

lines between DOs and MDs are blurring. In addition, the dedication of osteopaths to **holistic medicine** and primary care has been a great benefit to rural areas of the United States that are often understaffed by mainstream practitioners.

Chiropractic

Chiropractors are required to take two years of college with a relevant biological curriculum, and four years of resident study that must include supervised clinical experience. A further two years of practical or clinical studies is required, which must include diagnosis and disease treatment.

The Council on Chiropractic Education (CCE) and its Commission on Accreditation is an autonomous national organization recognized by the United States Department of Education as the authority on the quality of training offered by colleges of chiropractic.

Resources

BOOKS

Shealy, Norman C. *Alternative Medicine, An Illustrated Encyclopedia of Natural Healing*. Element Books, 1996.

PERIODICALS

"Osteopathic Manipulative Treatment May Benefit Patients." *Health & Medicine Week* (October 8, 2001).

Shepard, Scott. "Health Philosophies on Common Ground." *Cincinnati Business Courier* 18 (November 9, 2001): 38.

ORGANIZATIONS

American Association of Colleges of Osteopathic Medicine. 5550 Friendship Blvd., Suite 310, Chevy Chase, MD 20815-7231. (301) 968-4100. http://www.aacom.org.

The American Chiropractic Association. 1701 Clarendon Blvd, Arlington, VA 22209. (800) 986-4636. Member-info@amerchiro.org. http://www.amerchiro.org

American College of Chiropractic Consultants (ACCC). 28 E. Jackson Bldg., 10th Fl., Suite 1020 Chicago, IL 60604. http://www.accc-chiro.com.

American Osteopathic Association. 142 East Ontario Street, Chicago, IL 60611 (800) 621-1773. msc@aoa-net.org. http://www.aoa-net.org.

American Osteopathic Board of Neuromusculoskeletal Medicine. 3500 DePauw Boulevard, Suite 1080, Indianapolis, IN 46268-1136.

The General Council and Register of Osteopaths. 56 London Street, Reading, Berkshire RG1 4SQ, United Kingdom.

Patricia Skinner
Rebecca J. Frey, PhD

Spirulina

Description

Spirulina is a genus of blue-green algae used as a nutritional supplement. Blue-green algae, microscopic fresh-water organisms, are also known as cyanobacteria. Their color is derived from the green pigment of chlorophyll, and the blue from a protein called phycocyanin. The species most commonly recommended for use as a nutritional supplement are *Spirulina maxima* and *Spirulina platensis*. These occur naturally in warm, alkaline, salty, brackish lakes, but are also commonly grown by aquaculture and harvested for commercial use. Spirulina contains many nutrients, including B vitamins, beta-carotene, gamma-linolenic acid, **iron**, **calcium**, **magnesium**, **manganese**, **potassium**, **selenium**, **zinc**, **bioflavonoids**, and protein.

Spirulina is composed of about 65% protein. These proteins are complete, in that they contain all essential **amino acids**, plus some nonessential ones. In that regard, it is similar to animal protein, but does not contain saturated fats, or residues of hormones or antibiotics that are in some meats. Since spirulina is normally taken in small amounts, the quantity of dietary protein supplied for the average, reasonably well-nourished person would not be significant. However, it is a good source of trace minerals, some vitamins, bioflavonoids, and other phytochemicals. It also has high digestibility and bioavailability of nutrients.

General use

Spirulina has been used as a source of protein and nutrients, particularly beta-carotene, by the World

Spirulina is a genus of blue-green algae used as a nutritional supplement. *(© Medical-on-Line / Alamy)*

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Algae (sing., alga)—Any of numerous groups of one-celled organisms containing chlorophyll. Spirulina is a blue-green alga.

Neuropathy—Condition of weakness affecting the nervous system.

Phenylalanine—An essential amino acid that cannot be consumed by people with a metabolic disease known as phenylketonuria (PKU).

Phycocyanin—A protein found in spirulina that gives the alga its blue color. Phycocyanin has anti-inflammatory effects.

Phytochemicals—Nutritional substances contained in plants.

Health Organization (WHO) to feed malnourished Indian children. The program resulted in a decrease of a type of blindness that results from inadequate dietary **vitamin A**. The dose used in this year-long study was 1 gram per day.

There is a high **vitamin B_{12}** content in spirulina. For this reason, it has often been recommended as a supplemental source of the vitamin for vegans and other strict vegetarians, who are unlikely to have adequate dietary vitamin B_{12}. Unfortunately, spirulina is not an effective source of the usable vitamin. Much of the vitamin B_{12} is in the form of analogs that are unusable for humans, and may even block the active forms of vitamin B_{12} consumed from other sources.

Gamma linolenic acid (GLA) is present in significant amounts in a small percent of spirulina species. This essential fatty acid can be used in the body to form products that are anti-inflammatory and anti-proliferative. It is potentially useful for individuals with **rheumatoid arthritis** and diabetic neuropathy. It may also play a role in lowering plasma triglycerides and increasing HDL **cholesterol**.

Spirulina is a good source of available iron and zinc. A study done in rats found that those consuming spirulina had equivalent or better absorption than those given a ferrous sulfate iron supplement. A small human study of iron-deficient women had good response to iron supplementation with spirulina, although the amounts used were large (4 grams after each meal). Similarly, a study of zinc deficient children found that those taking spirulina had a superior response to those taking zinc sulfate, and had fewer side effects.

In addition to serving as a source of nutrients itself, spirulina has been used in the manufacture of fermented dairy products to guarantee the survival of the bacteria used to ferment the milk.

A stronger immune system is one claim made by boosters of spirulina. A number of animal studies appear to support stimulation of both antibody and cellular types of immunity. Immune function was markedly improved in children living in the areas surrounding Chernobyl. The measurements were made after 45 days, with each child consuming 5 grams of spirulina per day.

The growth of beneficial intestinal bacteria, including lactobacillus, appears to be stimulated by the consumption of spirulina, based on a study of rats who consumed it as 5% of their **diets**. The absorption of vitamin B_1 was also improved.

Cholesterol, serum lipids, and low-density lipoprotein (LDL) cholesterol may be lowered by a small, but significant, percentage by the consumption of spirulina. One study group of men with high cholesterol took 4.2 grams per day of spirulina, and experienced a 4.5% decrease in cholesterol after one month.

Spirulina is also thought to be helpful in the treatment of oral leukoplakia, a precancerous condition that is manifested as white patches in the mouth. It improves experimentally induced oral carcinoma (**cancer** in the mouth) as supported by studies done in animals.

The evidence for the ability of spirulina to promote weight loss is not very strong. Results have been mixed, and the phenylalanine content does not appear to be an appetite suppressant as is sometimes claimed. Whether other components of the algae are beneficial for weight loss is uncertain and unproven.

Spirulina has been recommended to alleviate the symptoms of **attention-deficit hyperactivity disorder** (ADHD), although evidence for this indication is lacking.

Spirulina has the highest concentration of evercetin found in a natural source. It is a potent antioxidant and anti-inflammatory compound that can be used to alleviate the symptoms of sinusitis and **asthma**. Phycocyanin, the protein that gives spirulina its blue color, has also been shown to relieve inflammation associated with arthritis and various **allergies**.

One recommended dose is 3–5 grams per day, but the amount used may depend on the product, the individual using it, and the indication for which it is being taken.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Preparations

Spirulina supplements are available in powder, flake, capsule, and tablet form. These supplements are generally expensive, and have a strong flavor that many people find unpleasant.

Precautions

Because spirulina is sensitive to pollutants in sea water, it can be used as a biosensor to measure the toxicity of a given body of water. Unfortunately, this sensitivity means that spirulina grown in water contaminated with heavy metals can concentrate these toxic substances. Mercury levels are of particular concern. Infectious organisms may also be present and contaminate harvested algae, so reputable sources of spirulina should be used.

Phenylketonurics should avoid spirulina due to the potential content of phenylalanine.

A number of varieties of blue-green algae, including *Aphanizomenon flos-quae* and *Anabaena*, have been found to sometimes produce toxins that may affect the nervous system or the liver.

Side effects

The potential side effects of spirulina are primarily gastrointestinal, and include **diarrhea**, **nausea**, and **vomiting**. Allergic reactions occur rarely, but can cause **insomnia** and **anxiety**.

Interactions

No interactions of spirulina with foods, conventional medications, or herbs have been documented as of 2002.

Resources

BOOKS

Bratman, Steven and David Kroll. *Natural Health Bible*. Prima Publishing, 1999.

Griffith, H. Winter. *Vitamins, Herbs, Minerals & supplements: the complete guide*. Arizona: Fisher Books, 1998.

Jellin, Jeff, Forrest Batz, and Kathy Hitchens. *Pharmacist's Letter/Prescriber's Letter Natural Medicines Comprehensive Database*. California: Therapeutic Research Faculty, 1999.

PERIODICALS

Remirez, D., R. Gonzalez, N. Merino, et al. "Inhibitory Effects of Spirulina in Zymosan-Induced Arthritis in Mice." *Mediators of Inflammation* 11 (April 2002): 75-79.

Remirez, D., N. Ledon, and R. Gonzalez. "Role of Histamine in the Inhibitory Effects of Phycocyanin in Experimental Models of Allergic Inflammatory Response." *Mediators of Inflammation* 11 (April 2002): 81-85.

Tonnina, D., et al. "Integral Toxicity Test of Sea Waters by an Algal Biosensor." *Annali di Chimica (Rome)* 92 (April 2002): 477-484.

Varga, L., J. Szigeti, R. Kovacs, et al. "Influence of a *Spirulina platensis* Biomass on the Microflora of Fermented ABT Milks During Storage (R1)." *Journal of Dairy Science* 85 (May 2002): 1031-1038.

OTHER

EarthNet. *EarthNet Scientific Health Library*. http://www.spirulina.com/SPLAbstracts1.html (2000).

Earthrise. *Spirulina Library Abstracts and Summaries*. http://www.earthrise.com/ERLibAbstracts2.html (2000).

Mayo Clinic. *Mayo Clinic: Blue-green algae*. http://www.mayohealth.org/mayo/askdiet/htm/new/qd970618.htm (1997).

Judith Turner
Rebecca J. Frey, PhD

Sports massage

Definition

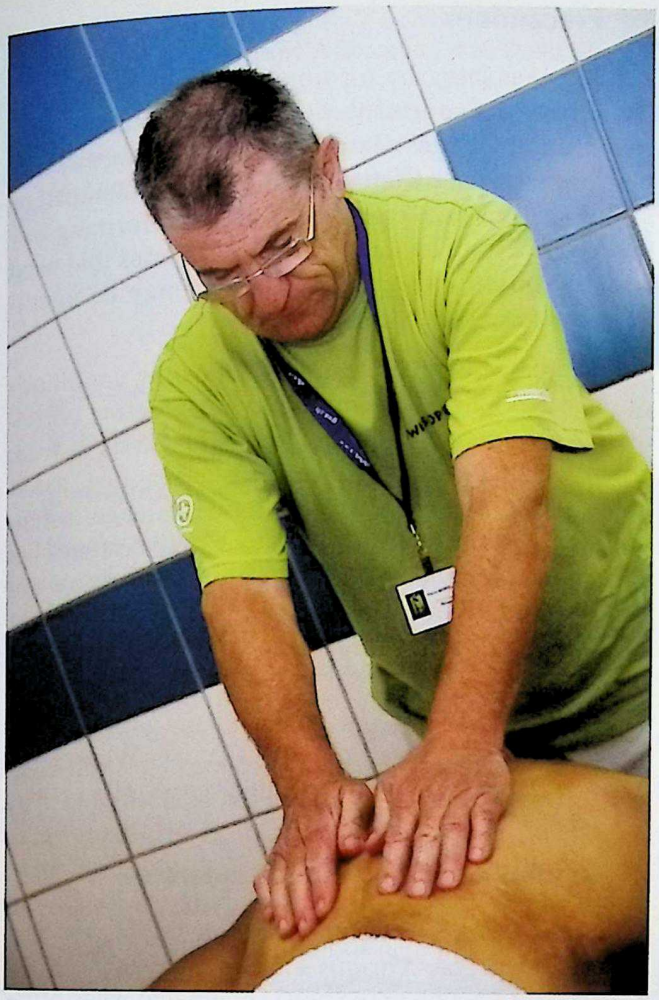
Sports massage is a form of bodywork geared toward participants in athletics. It is used to help prevent injuries, to prepare the body for athletic activity and maintain it in optimal condition, and to help athletes recover from workouts and injuries. Sports massage has three basic forms: pre-event massage, post-event massage, and maintenance massage.

Origins

Sports massage has antecedents in earlier periods of history. The ancient Greeks and Romans combined massage and **exercise** in their athletic training. Various Asian cultures also developed forms of massage for dancers and for students of **martial arts**. As a formal practice, however, sports massage began in the Soviet Union and Communist bloc countries in the 1960s. Soviet teams were the first to have a massage therapist travel with them and work on their athletes on a regular and ongoing basis. Through sports and cultural exchanges, the concept of sports massage moved to Europe and the United States in the 1970s. Over time the benefits of sports massage became accepted, and sports massage became a part of the training regimen, first of professional athletes, then of college and amateur athletes. Today sports massage is recognized as a specialty by the American **Massage Therapy** Association.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri



Sports trainer giving athlete massage. *(© Paul Paris / Alamy)*

KEY TERMS

Aneurysm—A sac or weak spot formed by the stretching of the wall of an artery.

Cupping—A type of percussion stroke in which the massage therapist strikes or thumps the muscles with cupped hands.

Effleurage—A massage technique that involves light stroking with the palms or thumbs.

Petrissage—A massage technique in which the therapist kneads the muscles with both hands.

Phlebitis—Inflammation of a vein, often accompanied by swelling and the formation of blood clots.

Benefits

Sports massage is a generic term for three different types of massage associated with athletic performance. Each type of massage has its own benefits and uses different techniques.

Pre-event sports massage is done to help prevent serious athletic injury. It helps to warm up the muscles, stretching them and making them flexible for optimal athletic performance. A pre-event massage stimulates the flow of blood and nutrients to the muscles, reduces muscle tension, loosens the muscles, and produces a feeling of psychological readiness.

Whenever athletes exercise heavily, their muscles suffer microtraumas. Small amounts of swelling occur in the muscle because of tiny tears. Post-event sports massage helps reduce the swelling caused by microtraumas; loosens tired, stiff muscles; helps maintain flexibility; promotes blood flow to the muscle to remove lactic acid and waste build-up; and reduces cramping. In addition, post-event massage helps speed the athlete's recovery time and alleviates pulls, **strains**, and soreness.

Maintenance sports massage is done at least once a week as a regular part of athletic training programs, although professional athletes who have their own massage therapists may have maintenance massage daily. Maintenance massage increases the flow of blood and nutrients to the muscles. It also keeps the tissues loose so that different layers of muscle slide easily over each other. Maintenance sports massage also helps reduce the development of scar tissue while increasing flexibility and range of motion.

The goal of all sports massage is to maximize athletic performance. Athletes in different sports will concentrate the massage on different parts of the body.

Conditions that generally respond well to massage as a complementary therapy include:

- muscle pain and stiffness
- muscle strain
- edema (swelling)
- muscle soreness
- muscle sprains
- muscle tension
- sore spots
- repetitive strain injuries
- tendinitis

Massage can help these conditions, but it should never be used to replace skilled medical care.

Description

Each type of sports massage uses different massage techniques. Effleurage is a light stroking that can

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

be performed with the palms or the thumbs. The pressure and speed is varied depending on the muscle and the desired result. Effleurage increases blood flow to the muscle. Petrissage is a form of two-handed kneading in which both hands pick up the muscle and compress it. This technique loosens tight bunches of muscles. Percussive strokes are blows or strikes on the muscle, often performed with the little fingers. They are used to tone the muscles. **Cupping** involves percussing or striking the muscles with cupped hands. It stimulates the skin and causes muscle contractions that help tone the muscles. There are variations on all these strokes, such as deep cross-fiber friction to separate muscle fibers and break down scar tissue, and jostling to relieve muscle tension. A good sports massage therapist will combine techniques to achieve the maximum desired result. Sports massage sessions generally last 30-60 minutes.

Pre-event massage is given shortly before an athlete competes. It consists mainly of brisk effleurage to stimulate and warm the muscles and petrissage to help muscles move fluidly and to reduce muscle tension. Effleurage is generally a relaxing **stroke**, but when done briskly it is stimulating. As the massage progresses, the pressure increases as the massage therapist uses percussive strokes and cupping to stimulate the muscles to contract and flex. The part of the body being massaged varies from sport to sport, although leg and back muscles are common targets for this type of massage.

Post-event massage is usually given 1–2 hours after the competition is over in order to give dilated blood vessels a chance to return to their normal condition. Post-event massage is light and gentle in order not to damage already stressed muscles. The goal is to speed up removal of toxic waste products and reduce swelling. Very light effleurage will decrease swelling while light petrissage will help clear away toxins and relieve tense, stiff muscles. Post-event massage can be self-administered on some parts of the body such as the legs.

Maintenance massage is performed at least once a week while the athlete is in training. It is frequently administered to the back and legs. Deep effleurage and petrissage are used to relax and tone knotted muscles.

Preparations

No special preparations are needed to participate in a sports massage. Athletes should wait 1–2 hours after competing before having a post-event massage.

Precautions

Massage may be an appropriate technique for helping certain sports injuries, especially muscle injuries, to heal. When treating an injury, however, it is best to seek advice from a qualified sports therapist or a specialist in sports medicine before performing any massage. Certain ligament and joint injuries that need immobilization and expert attention may be aggravated by massage.

People who suffer from the following conditions or disorders should consult a physician before participating in a sports massage: acute infectious disease; aneurysm; heavy bruising; **cancer**; hernia; high blood pressure; inflammation due to tissue damage; **osteoporosis**; **phlebitis**; **varicose veins**; and certain skin conditions. Individuals who are intoxicated are not good candidates for sports massage.

Side effects

Sports massage is safe and effective. When given correctly, there are no undesirable side effects.

Research and general acceptance

Sports massage has become an established and accepted practice. Various studies done in both the United States and Europe have shown that when properly used, massage will produce greater blood flow to the muscles and better athletic performance. The practice of sports massage is not considered controversial.

Training and certification

Accredited sports massage therapists must first complete a course in general massage from a school accredited by the American Massage Therapy Association/Commission on Massage Training Accreditation/Approval (AMTA/COMTAA) or their State Board of Education. They must then complete an additional training program approved by the AMTA National Sports Massage Certification Program. Many sports massage practitioners also complete the National Certification Examination for Therapeutic Massage and Bodywork.

Resources

BOOKS

Cassar, Mario-Paul. *Massage Made Easy*. Allentown, PA: People's Medical Society, 1995.

Johnson, Joan. *The Healing Art of Sports Massage*. Emmaus, PA: Rodale Press, 1995.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

ORGANIZATIONS

American Massage Therapy Association. 820 Davis Street, Suite 100. Evanston, IL 60201. (847) 864-0123.

National Certification Board for Therapeutic Massage and Bodywork. 8201 Greensboro Drive, Suite 300. McLean, VA 22102. (703) 610-9015.

Tish Davidson

Sprains & strains

Definition

Sprain refers to damage or tearing of ligaments or a joint capsule. Strain refers to damage or tearing of a muscle.

Description

When excessive force is applied to a joint, the ligaments that hold the bones together may be torn or damaged. This results in a sprain, and its seriousness depends on how badly the ligaments are torn. Any ligament can be sprained, but the most frequently injured ligaments are at the ankle, knee, and finger joints.

Strains are tears in the muscle. Sometimes called pulled muscles, they usually occur because a muscle lacks the flexibility, strength, or endurance to perform a certain activity. The majority of strains occur where the muscle meets the tendon, although they may occur in the middle of the muscle belly, as well.

Children under age eight are less likely to have sprains than are older people. Children's ligaments are tighter, and their bones are more apt to break before a ligament tears. People who are active in sports suffer more strains and sprains than less active people. Repeated sprains in the same joint make the joint less stable and more prone to future sprains. Muscle strains are also more likely to occur in muscles that have been previously injured.

Causes and symptoms

There are three grades of sprains. Grade I sprains are mild injuries where there is a stretching or mild tearing of the ligament, yet no joint function is lost. However, there may be tenderness and slight swelling.

Grade II sprains are caused by a partial tear in the ligament. These sprains are characterized by obvious swelling, localized tenderness, **pain**, joint laxity, difficulty bearing weight if the injury is to a lower extremity, and reduced function of the joint.

Severe ankle sprain. Complete rupture of Achilles tendon. *(James Cavallini / Photo Researchers, Inc.)*

Grade III, or third degree, sprains are caused by complete tearing of the ligament where there is severe pain, loss of joint function, widespread swelling, and the inability to bear weight if in the lower extremity. While a Grade III sprain may be very painful when it occurs, it is sometimes not painful after the injury because the ligament fibers have been completely torn and nothing is pulling on them. If this is true, the injury will be accompanied by a significant loss in joint stability.

Strains, like sprains, are also graded in three different categories. Grade I strains are considered mild. They are categorized by some localized swelling with no significant disruption of the muscle tendon unit. Stretching or contraction of the muscle may be painful.

Grade II strains indicate some disruption of the muscle tendon unit. They will often show a loss of strength and limitation in active motion, but the muscle has not been completely disrupted.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Ligament—Tough, fibrous connective tissue that holds bones together at joints.

Moxibustion—A treatment where crushed leaves of the plant vulgaris are formed into a cigar-like form that is lit and held directly over the skin of the area being treated.

Grade III, or third degree, strains indicate a complete rupture in the muscle tendon unit. This injury is likely to be very painful and often the individual will report hearing a loud pop or snap when the injury occurred. The site of injury is often quite visible and there will be a significant defect in the muscle that can be felt with the fingers. A Grade III muscle strain will often have very serious bruising with it as well.

Diagnosis

Grade I sprains and strains are usually self-diagnosed. Grade II and III sprains are often seen by a physician who may x ray the area to differentiate between a sprain and other serious joint injuries. Since muscles don't show up on x ray, Grade II and III muscle strains are usually diagnosed by physical examination.

Treatment

While the primary problem with sprains and strains is a torn or damaged ligament or muscle fiber, additional complications may develop as a result of swelling and immobilization of the injured area. In order to prevent these complications from worsening, alternative practitioners endorse RICE: Rest, Ice for 48 hours, Compression (wrapping in an elastic bandage), and Elevation of the sprain or strain above the level of the heart.

Nutritional therapists recommend **vitamin C** and **bioflavonoids** to supplement a diet high in whole grains, fresh fruits, and vegetables. Anti-inflammatories, such as **bromelain** (a proteolytic enzyme from pineapples) and **turmeric** (*Curcuma longa*), may also be helpful. The homeopathic remedy *Arnica* (*Arnica montana*) may be used initially for a few days, followed by Rhus tox (*Rhus toxicodendron*) for joint-related injuries or *Ruta rutagraveolens* for muscle-related injuries. **Arnica** gel or ointment, such as *Traumeel*, or a homeopathic combination of arnica and other remedies, has also been found effective with certain joint sprains.

Traditional Chinese medicine has been effectively used to treat soft tissue injuries like sprains and strains. **Acupuncture** is used to treat pain and speed the healing process in the damaged tissues by moving blocked energy from the area. The radiant heat of **moxibustion** may also be used to improve the healing response in the damaged tissues.

Specialized forms of massage and soft tissue manipulation may be used by a variety of practitioners. Massage has significant effects in enhancing local circulation, promoting earlier mobility, and speeding the healing response in the damaged tissue. It will most often be used in combination with other approaches including stretching and range of motion exercises.

Allopathic treatment

Grade I sprains and strains can be treated at home. Basic first aid for sprains consists of RICE (Rest, Ice, Compression, and Elevation). Over-the-counter pain medication such as acetaminophen (Tylenol) or ibuprofen (Motrin) can be taken for pain.

People with grade II sprains or strains may often be referred to physical therapy. Crutches or splints may be used during the healing process to help maintain stability. Surgery may be required for Grade III sprains or strains as a greater amount of damage will often prevent adequate healing without surgery.

Expected results

Moderate sprains and strains heal within two to four weeks, but it can take months to recover from severe injuries. Until recently, tearing the ligaments of the knee meant the end to an athlete's career. Improved surgical and rehabilitative techniques now offer the possibility of complete recovery. However, once a ligament has been sprained, it may not be as strong as it was before. A muscle that has been strained is also more susceptible to re-injury.

Prevention

Sprains and strains can be prevented by warming up before exercising, using proper form when performing activities and conditioning, being careful not to **exercise** past the point of **fatigue**, and taping or bracing certain joints to protect from injury.

Resources

BOOKS

Benjamin, Ben. *Listen to Your Pain*. New York: Penguin, 1984.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Burton Goldberg Group. "Sprains." In *Alternative Medicine: The Definitive Guide*, edited by James Strohecker. Puyallup, WA: Future Medicine Publishing, 1994.
Corrigan, Brian, and G.D. Maitland. *Musculoskeletal & Sports Injuries*. Oxford: Butterworth–Heinemann, 1994.
Pelletier, Kenneth R. *The Best Alternative Medicine*. New York: Simon & Schuster, 2000.
"Sprains and strains." In *The Medical Advisor: The Complete Guide to Alternative and Conventional Treatments*. Alexandria, VA: Time–Life Books, 1996.

PERIODICALS
Wexler, Randall K. "The Injured Ankle." *American Family Physician* 57 (February 1, 1998): 474.

Whitney Lowe

Sprue *see* **Celiac disease**
Squaw root *see* **Black cohosh**

Squawvine

Description

Squawvine (*Mitchella repens*) is a plant that is native to North America. It is an evergreen herb belonging to the madder or Rubiaceae family. It grows in the forests and woodlands of the eastern United States and Canada. Squawvine is usually found at the base of trees and stumps. Although squawvine grows year round, herbalists recommend collecting the herb when the plant flowers during the months of April through June.

Squawvine's name refers to its use by Native American women as a remedy for a range of conditions. Squawvine is also referred to as "partridge berry" because some people consider the other name to be insulting to Native American women. Squawvine is also known as squaw vine, squaw berry, checkerberry, deerberry, winter clover, twinberry, and hive vine.

General use

Squawvine's name stems from its use by Native American women for conditions related to childbearing. The plant was used to ease menstrual cramps, strengthen the uterus for **childbirth**, and prevent miscarriage. During the final 2 to 4 weeks of a Native American woman's pregnancy, she drank tea made from squawvine leaves so that childbirth was less painful. The herb was said to regulate contractions so that the baby was delivered safely, easily, and quickly. After the baby was born, the Native American mother who nursed her child would put a squawvine solution on her nipples to relieve the soreness.

In folk medicine, squawvine continued to be a remedy for women's disorders. In addition to conditions related to childbirth, the herb was used to treat postpartum **depression**, irregular menstruation, and bleeding. In addition to treating internal ailments, a squawvine wash was said to provide relief to sore eyes. Squawvine is still used in folk medicine to treat conditions including anxiety, **hemorrhoids**, insomnia, **muscle spasms**, **edema**, gravel, and inflammation.

Current uses of squawvine

Squawvine is used in alternative medicine to tone the uterine lining and prepare a woman's body for childbirth. The herb is taken for painful menstruation and to tone the prostate. It is also said to help promote fertility and to increase the flow of mother's milk.

Furthermore, squawvine is recognized by practitioners of alternative medicine for its effectiveness as a diuretic. It is used to treat such urinary conditions as suppression of urine. Squawvine is also a remedy for **diarrhea**, shrinking tissues, muscle spasms, and nerves.

Squawvine is still used as an eye wash. It is also used as a skin wash and to treat **colitis**.

Preparations

Squawvine is available in various forms. Commercial preparations include tinctures, extracts and powdered herb.

Squawvine tea, which is also known as an infusion, is made by pouring 1 cup (240 ml) of boiling water over 1 tsp (1.5 g) of the dried herb. The mixture is steeped for 10 to 15 minutes and then strained. Squawvine tea may be taken up to three times a day. Women seeking relief for difficult or painful menstruation can combine squawvine with cramp bark and pasque flower.

KEY TERMS

Decoction—A herbal extract produced by mixing a herb with cold water, bringing the mixture to a boil, and letting it simmer to evaporate the excess water.

Tincture—A liquid extract of a herb prepared by steeping the herb in an alcohol and water mixture.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Squawvine tincture can be used in an infusion. The dosage is 1–2mL in 1 cup (240 ml) of boiling water. The tincture dosage can be taken three times a day.

Use in pregnancy and lactation

Pregnant women should not take squawvine during the first two trimesters of **pregnancy**. Some herbalists, however, recommend taking the herb during the eighth and ninth month to make labor easier. During those months, squawvine can be taken once or twice daily. It can be combined with raspberry leaves in this remedy to prepare for childbirth.

Nursing mothers with sore nipples can try a nineteenth-century folk remedy. A squawvine ointment is prepared by first making a decoction. A non-aluminum pan is used to boil 2 oz. (2 ml) of the powdered herb and 1 pint (470 ml) of water. The mixture is simmered for 10 minutes. It is then strained and the juice is squeezed out. The liquid is measured and an equal amount of cream is added to it. This mixture is boiled until it reaches a soft, ointment-like consistency. It is cooled and can be applied to the nipples after the baby has finished nursing.

Precautions

Some herbal remedies have been studied in Europe, but no information was available about the safety of squawvine as of June 2000. Squawvine is believed to be safe when taken in recommended dosages for a short time. There should be no problems when this remedy is used by people beyond childhood and those who are above age 45. Some of the assessment that squawvine is a safe remedy, however, is based on the fact that no problems had been reported when squawvine was used by people including pregnant women and nursing mothers.

Squawvine is an herbal remedy and not regulated by the U.S. Food and Drug Administration (FDA). The regulation process involves research into whether the remedy is safe to use. In addition, the effectiveness of squawvine for its traditional uses in childbirth and during lactation has not been clinically tested.

People should consult a doctor or health care practitioner before taking squawvine. The patient should inform the doctor about other medications or herbs that he or she takes. Once treatment with squawvine begins, people should see their doctors if their conditions haven't improved within two weeks.

Opinion is divided about whether squawvine is safe for women to use. On one side are those who caution that squawvine should be avoided by women who are currently pregnant or are planning to conceive within the short term. Herbalists advise that it should not be taken during the first two trimesters of pregnancy. Furthermore, squawvine and other herbal remedies should not be given to children under the age of two.

Side effects

There are no known side effects from using squawvine. Little research has been done, however, on its safety.

Interactions

No interactions have been reported between squawvine and other herbs or medications. Before using this herb as a remedy, however, a person should first consult with a doctor or health practitioner to discuss potential interactions.

Resources

BOOKS

Duke, James A. *The Green Pharmacy*. Emmaus, PA: Rodale Press, Inc., 1997.

Keville, Kathi. *Herbs for Health and Healing*. Emmaus, PA: Rodale Press, Inc., 1996.

Ritchason, Jack. *The Little Herb Encyclopedia*. Pleasant Grove, UT: Woodland Health Books, 1995.

Squier, Thomas Broken Bear, with Lauren David Peden. *Herbal Folk Medicine*. New York: Henry Holt and Company, 1997.

ORGANIZATIONS

American Botanical Council. P.O. Box 201660. Austin TX, 78720. (512) 331-8868.

Herb Research Foundation. 1007 Pearl St., Suite 200. Boulder, CO 80302. (303) 449-2265. http://www.herbs.org.

Liz Swain

St. John's wort

Description

Hypericum perforatum is the most medicinally important species of the Hypericum genus, commonly known as St. John's wort or Klamath weed. There are as many as 400 species in the genus, which belongs to the Clusiaceae family. Native to Europe, St. John's wort is found throughout the world. It thrives in sunny fields, open woods, and gravelly roadsides. Early colonists brought this plant to North America,

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

St. John's Wort. *(© Arco Images / Alamy)*

and it has become naturalized in the eastern United States and California, as well as in Australia, New Zealand, eastern Asia, and South America. St. John's wort has long been one of the most commonly used herbs in the United States, especially among women. The popular use of the herb declined in the late 1990s, though, due in part to research reports that the hypericum in the plant may be less effective in treating **depression** than previously claimed.

The entire plant, particularly its round black seeds, exudes a slight turpentine-like odor. The woody-branched root spreads from the base with runners that produce numerous stalks. The simple dark green leaves are veined and grow in opposite, oblong, or oval pairs on round branching stalks that reach as high as 3 ft (91.4 cm). Tiny holes, visible when the leaf is held to the light, are actually transparent oil glands containing a chemical known as hypericin. These characteristic holes inspired the species name, Perforatum, which is the Latin word for perforated. The bright yellow star-shaped flowers, often clustered in groups of three, have five petals. Black dots along the margins of the blossom contain more hypericin. The flowers bloom in branching flat-topped clusters atop the stalks, around the time of the summer solstice. St. John's wort, sometimes called devil's flight or grace of God, was believed to contain magical properties that ward off evil spirits. Its generic name, Hypericum, is derived from a Greek word meaning "over an apparition." The herb was traditionally gathered on midsummer's eve, June 23. This date was later celebrated by Christians as the eve of the feast day of St. John the Baptist. This folk custom gave the plant its popular name. The Anglo-Saxon word wort means medicinal herb.

General use

St. John's wort has been known for its beneficial properties as far back as Roman times. On the battlefield, it was a valued remedy that promoted healing from trauma and inflammation. The herb is regarded as a vulnerary, an agent that can speed the healing of **wounds**, **bruises**, ulcers, and **burns**. It is also popularly used as a nervine for its calming effect, easing tension and **anxiety**, relieving mild depression, and soothing women's mood swings during **menopause**. The bittersweet herb is licensed in Germany for use in mild depression, anxiety, and sleeplessness. It is said to be helpful in nerve injury and trauma and was used in the past to speed healing after brain surgery. Its antispasmodic properties were thought to ease uterine cramping and menstrual difficulties. St. John's wort may also be used as an expectorant.

Laboratory and animal studies have demonstrated that the hypericin in St. John's wort possesses antiviral properties. The herb is said to be effective against **influenza**, herpes simplex types I and II, and other viruses. The light-sensitive properties of hypericin have been useful diagnostically in detecting the presence of certain cancers. An infusion of the plant, taken as a tea, has been helpful in treating **bedwetting** in children. The oil has been used internally to treat **colic**, intestinal **worms**, and abdominal **pain**. The plant's medicinal parts are its fresh leaves and flowers. This herbal remedy has been extensively tested in West Germany and is dispensed throughout Germany as a popular medicine called *Johanniskraut*. Commercially prepared extracts are commonly standardized to contain 0.3% hypericin.

Clinical studies

In contrast to early European reports made in the 1980s, subsequent clinical studies tended to undermine the claims made for St. John's wort as a possible treatment for HIV infection and major depression. As of 2002, health care professionals and regulatory agencies in Europe were advised to warn **AIDS** patients that

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

St. John's wort decreases the effectiveness of drugs known as HIV protease inhibitors.

In 2005, the British Journal of Psychiatry reported on a systematic review of 37 previous scientific studies. The studies compared the clinical benefits to adults with depressive disorders of hypericum in St. John's wort and either a placebo or a standard antidepressant. The researchers reviewing the studies concluded that the evidence regarding the clinical effectiveness of hypericum extract was "inconsistent and confusing." Some of the trials suggested that St. John's wort extract had "minimal beneficial effects" in treating major depression, while other trials suggested "similar beneficial effects" when using either a standard antidepressant or the hypericum extract of St. John's wort.

In a placebo-controlled study reported in 2005 in the Journal of Clinical Psychopharmacology researchers gave dosages of either St. John's wort extract, fluoxetine (Prozac), or a sugar pill to 135 depressed patients over a three-month period. They found that the herbal extract of St. John's wort was more effective than the pharmaceutical fluoxetine but was not statistically more effective than the placebo sugar pill.

Preparations

An oil extract can be purchased commercially or prepared by combining fresh St. John's wort flowers and leaves in a glass jar with sunflower or olive oil. The container should be sealed with an airtight lid and placed on a sunny windowsill for four to six weeks. It should be shaken daily. When the oil absorbs the red pigment, the mixture is strained through muslin or cheesecloth and stored in a dark container. The medicinal oil maintains its potency for two years or more. The oil of St. John's wort has been known in folk culture as Oil of Jesus. This oil forms a rub used for painful joints, **varicose veins**, muscle strain, arthritis, and rheumatism. Placed in a compress, it can help to heal wounds and inflammation, and relieve the pain of deep bruising.

An infusion is made by pouring one pint of boiling water over 1 oz (28 g) of dried herb, or 2 oz (57 g) of fresh, minced flower and leaf. It is steeped in a glass or enamel pot for five to 10 minutes, then strained and covered. The tea should be consumed while it is warm. A general dose is one cup, up to three times daily.

To prepare a capsule, the leaves and flowers are dried and ground with a mortar and pestle into a fine powder. The mixture is then placed in gelatin capsules. The potency of the herb varies with the soil, climate, and harvesting conditions of the plant. A standardized extract of 0.3% hypericin extract, commercially prepared from a reputable source, is more likely to yield reliable results. Standard dosage is up to three 300 mg capsules of 0.3% standardized extract daily.

A tincture is prepared by combining one part fresh herb to three parts alcohol (50% alcohol/water solution) in a glass container. The mixture is placed in a dark place and shaken daily for two weeks. Then it is strained through muslin or cheesecloth and stored in a dark bottle. The tincture should maintain potency for two years. Standard dosage, unless otherwise prescribed, is 0.24–1 tsp added to 8 oz (227 g) of water, up to three times daily.

A salve can be made by warming 2 oz (57 g) of prepared oil extract in a double boiler. Once warmed, 1 oz (28 g) of grated beeswax is added and mixed until melted. The mixture is poured into a glass jar and allowed to cool. The salve can be stored for up to one year. The remedy keeps best if refrigerated after preparation. The salve is useful in treating burns, wounds, and soothing painful muscles. It is also a good skin softener. St. John's wort salve may be prepared in combination with **calendula** extract (*Calendula officinalis*) for application on bruises.

Precautions

There are a number of important precautions to observe in using St. John's Wort. Pregnant or lactating women should not use the herb at all. Animal studies have linked St. John's wort to lower birth weight, and there are studies showing that breastfed infants whose mothers are using St. John's wort may experience drowsiness or colic. Persons taking prescription antidepressants of any kind should not use St. John's wort at the same time, as the herb may precipitate a health crisis known as serotonin syndrome. Serotonin syndrome is potentially life threatening; it is characterized by changes in level of consciousness, behavior, and neuromotor functioning as a result of increased levels of the neurotransmitter serotonin in the central nervous system. Drug interactions are the most common cause of serotonin syndrome. Several cases of serotonin syndrome have been reported in patients who were taking St. John's Wort by itself or in combination with SSRIs, fenfluramine (Pondimin), or nefazodone (Serzone). Persons using the herb should discontinue it a minimum of two weeks prior to any surgery requiring general anesthesia, as it interacts with a number of intravenous and inhaled anesthetics.

It is also important for persons using St. John's Wort to purchase the herb from a reputable source, as the quality of herbal products sold in the United States and Canada varies widely. One study of 10 popular

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

herb samples, including St. John's wort, reported in 2003 that each herb had "a large range in label ingredients and recommended daily dose (RDD) across available products." The researchers recommended that physicians and consumers pay very close attention to labels on over-the-counter (OTC) herbal products.

In addition to the herb's potential risks to humans, it can be toxic to livestock. Toxic effects in cattle include reports of **edema** of the ears, eyelids, and the face due to photosensitization after the animal eats the herb. Exposure to sunlight activates the hypericin in the plant. Adverse effects have been reported in horses, sheep, and swine, including a staggering gait and blistering or peeling of the skin. Smaller animals, such as rabbits, suffer severe side effects from accidental ingestion of St. John's wort. The Veterinary **Botanical Medicine** Association (VBMA), which was founded in 2002 as an offshoot of the American Veterinary Medical Association (AVMA), offers a page on its Web site for reporting adverse effects of St. John's wort or any other herb in cats, dogs, or other animals.

Side effects

When used either internally or externally, the herb may cause photodermatitis in humans with fair or sensitive skin, following exposure to sunlight or other sources of ultraviolet light. There have also been some case reports of side effects in breast-feeding women taking hypericum extract. Changes in the nutritional quality and flavor of the milk, as well as reduction or cessation of lactation, have been reported. In addition, St. John's wort has been known to cause headaches, stiff neck, **nausea** or **vomiting**, and high blood pressure in susceptible individuals.

Interactions

There is consistent evidence that St. John's wort has a number of problematic interactions with many drugs. It has been reported to interact with amphetamines, **asthma** inhalants, decongestants, diet pills, narcotics, tryptophan and tyrosine (**amino acids**), as well as antidepressant medications and certain foods. It has also been reported to interfere with the effectiveness of birth control pills as well as with indinavir (Crixivan) and other AIDS medications. Moreover, anesthesiologists have reported that the herb increases bleeding time in patients under general anesthesia. Patients should always consult a mainstream health practitioner before using St. John's wort and should discontinue taking it at least two weeks prior to major surgery. As of 2008, additional studies were underway to examine the interactions of St. John's wort with the absorption, metabolism, and elimination of various types of prescription medications.

KEY TERMS

Antispasmodic—A drug or medication given to relieve mild intestinal cramping or muscle spasms.

Expectorant—A medication or preparation that encourages the discharge of mucus from the respiratory system.

Nervine—A medication or preparation given to calm the nervous system.

Neurotransmitter—Any of several compounds produced in the body that relay nerve impulses from one nerve cell to another. St. John's wort has been reported to affect the balance of neurotransmitters in the brain.

Serotonin syndrome—A potentially life-threatening reaction to increased levels of the neurotransmitter serotonin in the central nervous system, most often as a result of drug interactions. St. John's wort has been implicated in several cases of serotonin syndrome.

Vulnerary—A medication or preparation used to heal wounds, bruises, sprains, and ulcers.

Resources

BOOKS

Muller, W. E., ed. *St. John's Wort and Its Active Principles in Depression and Anxiety (Milestones in Drug Therapy)* Basel, Switzerland: Birkhauser, 2005.

PERIODICALS

Fava, M., et al. "A Double-Blind, Randomized Trial of St. John's Wort, Fluoxetine, and Placebo in Major Depressive Disorder." *Journal of Clinical Psychopharmacology* 25, no. 5 (October 2005): 441–47.

Linde, K., et al. "St. John's Wort for Depression." *Cochrane Database System Review* (April 18, 2005): 2: CD000448.

S. R. "St. John's Wort Caution Urged." *Fit Pregnancy* 13, no. 7. (February/March 2007).

ORGANIZATIONS

American Botanical Council, PO Box 144345, Austin, TX, 78714-4345, (512) 926-4900, http://abc.herbalgram.org.

Food and Drug Administration (FDA), 5600 Fishers Lane, Rockville, MD, 20857, (888) 463-6332, http://www.fda.gov.

Herb Research Foundation, 1007 Pearl St., Suite 200, Boulder, CO, 80302, (303) 449-2265, http://www.herbs.org.

National Center for Complementary and Alternative Medicine (NCCAM) Clearinghouse, PO Box 7923,

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Gaithersburg, MD, 20898-7923, (888) 644-6226, http://nccam.nih.gov.

Veterinary Botanical Medicine Association (VBMA). c/o Susan G. Wynn, DVM, , 334 Knollwood Lane, Woodstock, GA, 30188, s.wynn@vbma.org., http://www.vbma.org.

Clare Hanrahan

Staphylococcal infections

Definition

Staphylococcal (staph) **infections** are communicable infections caused by staph organisms and often characterized by the formation of abscesses. They are the leading cause of primary infections originating in hospitals (nosocomial infections) in the United States.

Description

Classified since the early twentieth century as among the deadliest of all disease-causing organisms, staph exists on the skin or inside the nostrils of 20–30% of healthy people. It is sometimes found in breast tissue, the mouth, and the genital, urinary, and upper respiratory tracts.

Although staph bacteria are usually harmless, when injury or a break in the skin enables the organisms to invade the body and overcome the body's natural defenses, consequences can range from minor discomfort to death. Infection is most apt to occur in:

- Newborns (especially those born prematurely).
- Women who are breast-feeding.
- Persons whose immune systems have been undermined by radiation treatments, chemotherapy, HIV, or medication.
- Intravenous drug users.
- Those with surgical incisions, skin disorders, and serious illness like cancer, diabetes, and lung disease.
- The elderly, particularly those who are confined to nursing homes.

Types of infections

Staph skin infections often produce pus-filled pockets (abscesses) located just beneath the surface of the skin or deep within the body. Risk of infection is greatest among the very young and the very old.

Patient with staphylococcal orbital cellulitis. *(Science Source/Photo Researchers, Inc.)*

A localized staph infection is confined to a ring of dead and dying white blood cells and bacteria. The skin above it feels warm to the touch. Most of these abscesses eventually burst, and pus leaking onto the skin can cause new infections.

A small fraction of localized staph infections enter the bloodstream and spread through the body. In children, these systemic (affecting the whole body) or disseminated infections frequently affect the ends of the long bones of the arms or legs, causing a bone infection called osteomyelitis. When adults develop invasive staph infections, bacteria are most apt to cause abscesses of the brain, heart, kidneys, liver, lungs, or spleen.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Abscess—A localized accumulation of pus in a body tissue.

Bacteremia—The presence of bacteria in the bloodstream.

Endocarditis—Inflammation of the lining of the heart, and/or the heart valves, caused by infection.

Fluoroquinolones—A group of newer antibiotics that are used to treat penicillin-resistant staphylococcal infections.

Nosocomial—Contracted in a hospital. Staph infections are the most common type of nosocomial infections.

Superantigen—A type of bacterial toxin that triggers abnormal activation of T-cells, which regulate the body's response to infected or malignant cells. *S. aureus* is responsible for the production of a number of different superantigens.

TOXIC SHOCK. **Toxic shock syndrome** is a life-threatening infection characterized by severe **headache**, **sore throat**, **fever** as high as 105°F (40.6°C), and a sunburn-like rash that spreads from the face to the rest of the body. Symptoms appear suddenly; they also include dehydration and watery **diarrhea**.

Inadequate blood flow to peripheral parts of the body (shock) and loss of consciousness occur within the first 48 hours. Between the third and seventh day of illness, skin peels from the palms of the hands, soles of the feet, and other parts of the body. Kidney, liver, and muscle damage often occur.

SCALDED SKIN SYNDROME. Rare in adults and most common in newborns and other children under the age of five, scalded skin syndrome originates with a localized skin infection. A mild fever and/or an increase in the number of infection-fighting white blood cells may occur.

A bright red rash spreads from the face to other parts of the body and eventually forms scales. Large, soft **blisters** develop at the site of infection and elsewhere. When they burst, they expose inflamed skin that looks as if it had been burned.

MISCELLANEOUS INFECTIONS. *Staphylococcus aureus* can also cause:

- arthritis
- bacteria in the bloodstream (bacteremia)
- pockets of infection and pus under the skin (carbuncles)
- tissue inflammation that spreads below the skin, causing pain and swelling (cellulitis)
- inflammation of the valves and walls of the heart(endocarditis)
- inflammation of tissue that enclosed and protects the spinal cord and brain (meningitis)
- inflammation of bone and bone marrow (osteomyelitis).
- pneumonia

Types of staph infections

STAPHYLOCOCCUS AUREUS. Named for the golden color of the bacterium when grown under laboratory conditions, *S. aureus* is a hardy organism that can survive in extreme temperatures or other inhospitable circumstances. About 70–90% of the population carry this strain of staph in the nostrils at some time. Although present on the skin of only 5–20% of healthy people, as many as 40% carry it elsewhere, such as in the throat, vagina, or rectum, for varying periods of time, from hours to years, without developing symptoms or becoming ill.

S. aureus flourishes in hospitals, where it infects healthcare personnel and patients who have had surgery; who have acute **dermatitis**, insulin-dependent diabetes, or dialysis-dependent kidney disease; or who receive frequent allergy-desensitization injections. Staph bacteria can also contaminate bedclothes, catheters, and other objects. In many cases, staph contamination in hospitals is made worse by overprescribing and misuse of antibiotics. The result is the emergence of **strains** of *S. aureus* that are resistant to antibiotics.

S. aureus causes a variety of infections. **Boils** and inflammation of the skin surrounding a hair shaft (folliculitis) are the most common. Toxic shock (TSS) and scalded skin syndrome (SSS) are among the most serious. *S. aureus* is also emerging as a leading cause of infective endocarditis and of a higher mortality rate from this disorder.

Together with *S. pyogenes*, *S. aureus* is known to be a major producer of superantigens, which are bacterial exotoxins that trigger abnormal and excessive activation of T-cells. T cells are produced in the thymus gland and regulate the human immune system's response to infection. Superantigens are being studied intensively for their roles in causing disease. Staphylococci are responsible for at least 19 different superantigens.

S. EPIDERMIDIS. Capable of clinging to tubing (as in that used for intravenous feeding, etc.), prosthetic devices, and other non-living surfaces, *S. epidermidis*

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

is the organism that most often contaminates devices that provide direct access to the bloodstream.

The primary cause of bacteremia in hospital patients, this strain of staph is most likely to infect **cancer** patients, whose immune systems have been compromised, and high-risk newborns receiving intravenous supplements.

S. epidermidis also accounts for two of every five cases of prosthetic valve endocarditis. Prosthetic valve endocarditis is endocarditis as a complication of the implantation of an artificial valve in the heart. Although contamination usually occurs during surgery, symptoms of infection may not become evident until a year after the operation. More than half of the patients who develop prosthetic valve endocarditis die.

STAPHYLOCOCCUS SAPROPHYTICUS. Existing within and around the tube-like structure that carries urine from the bladder (urethra) of about 5% of healthy males and females, *S. saprophyticus* is the second most common cause of unobstructed urinary tract infections (UTIs) in sexually active young women. This strain of staph is responsible for 10-20% of infections affecting healthy outpatients.

Causes and symptoms

Staph bacteria can spread through the air, but infection is almost always the result of direct contact with open sores or body fluids contaminated by these organisms.

Warning signs

Common symptoms of staph infection include:

- Pain or swelling around a cut, or an area of skin that has been scraped.
- Boils or other skin abscesses.
- Blistering, peeling, or scaling of the skin. This is most common in infants and young children.
- Enlarged lymph nodes in the neck, armpits, or groin.

A family physician should be notified whenever:

- A boil or carbuncle appears on any part of the face or spine. Staph infections affecting these areas can spread to the brain or spinal cord.
- A boil becomes very sore. Usually a sign that infection has spread, this condition may be accompanied by fever, chills, and red streaks radiating from the site of the original infection.
- Boils that develop repeatedly. This type of recurrent infection could be a symptom of diabetes.

Diagnosis

Blood tests that show unusually high concentrations of white blood cells can suggest staph infection, but diagnosis is based on laboratory analysis of material removed from pus-filled sores, and on analysis of normally uninfected body fluids, such as blood and urine. Also, x rays can enable doctors to locate internal abscesses and estimate the severity of infection. Needle biopsy (removing tissue with a needle, then examining it under a microscope) may be used to assess bone involvement.

Treatment

Superficial staph infections can generally be cured by keeping the area clean and antiseptic and applying warm, moist compresses to the affected area for 20 to 30 minutes three or four times a day.

Among the therapies believed to be helpful for the person with a staph infection are **yoga** (to stimulate the immune system and promote **relaxation**), **acupuncture** (to draw heat away from the infection), and herbal remedies. Herbs that may help the body overcome, or withstand, staph infection include:

- Garlic (*Allium sativum*). This herb is believed to have antibacterial properties. Herbalists recommend consuming three garlic cloves or three garlic oil capsules a day, starting when symptoms of infection first appear.
- Cleavers (*Galium aparine*). This anti-inflammatory herb is believed to support the lymphatic system. It may be taken internally to help heal staph abscesses and reduce swelling of the lymph nodes. A cleavers compress can also be applied directly to a skin infection.
- Goldenseal (*Hydrastis canadensis*). Another herb believed to fight infection and reduce inflammation, goldenseal may be taken internally when symptoms of infection first appear. Skin infections can be treated by making a paste of water and powdered goldenseal root and applying it directly to the affected area. The preparation should be covered with a clean bandage and left in place overnight.
- Echinacea (*Echinacea* spp.). Taken internally, this herb is believed to have antibiotic properties and is also thought to strengthen the immune system.
- Thyme (*Thymus vulgaris*), lavender (*Lavandula officinalis*), or bergamot (*Citrus bergamot*) oils. These oils are believed to have antibacterial properties and may help to prevent the scarring that may result from skin infections. A few drops of these oils are

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

added to water and then a compress soaked in the water is applied to the affected area.

- Tea tree oil (*Melaleuca* spp., or ylang ylang). Another infection-fighting herb, this oil can be applied directly to a boil or other skin infection.

Allopathic treatment

Severe or recurrent infections may require a seven- to 10-day course of treatment with penicillin or other oral antibiotics. The location of the infection and the identity of the causal bacterium determines which of several effective medications should be prescribed. In recent years, doctors have turned to such newer medications as vancomycin or the fluoroquinolones to treat staph infections because strains of *S. aureus* have emerged that are resistant to penicillin and the older antibiotics.

In case of a more serious infection, antibiotics may be administered intravenously for as long as six weeks. Intravenous antibiotics are also used to treat staph infections around the eyes or on other parts of the face.

Surgery may be required to drain or remove abscesses that form on internal organs, or on shunts or other devices implanted inside the body.

Expected results

Most healthy people who develop staph infections recover fully within a short time. Others develop repeated infections. Some become seriously ill, requiring long-term therapy or emergency care. A small percentage die.

Prevention

Healthcare providers and patients should always wash their hands thoroughly with warm water and soap after treating a staph infection or touching an open wound or the pus it produces. Pus that oozes onto the skin from the site of an infection should be removed immediately. This affected area should then be cleansed with antiseptic or with antibacterial soap.

To prevent infection from spreading from one part of the body to another, it is important to shower rather than bathe during the healing process. Because staph infection is easily transmitted from one member of a household to others, towels, washcloths, and bed linens used by someone with a staph infection should not be used by anyone else. They should be changed daily until symptoms disappear, and laundered separately in hot water with bleach.

Children should frequently be reminded not to share:

- brushes, combs, or hair accessories
- caps
- clothing
- sleeping bags
- sports equipment
- other personal items

A diet rich in green, yellow, and orange vegetables can bolster natural immunity. A doctor or nutritionist may recommend vitamins or mineral supplements to compensate for specific dietary deficiencies. Drinking eight to 10 glasses of water a day can help flush disease-causing organisms from the body.

Because some strains of staph bacteria are known to contaminate artificial limbs, prosthetic devices implanted within the body, and tubes used to administer medication or drain fluids from the body, catheters and other devices should be removed on a regular basis, if possible, and examined for microscopic signs of staph. Symptoms may not become evident until many months after contamination has occurred, so this practice should be followed even with patients who show no sign of infection.

A vaccine against *S. aureus* was developed in the late 1990s for use with patients with low resistance to infection. A trial of the vaccine in hemodialysis patients indicates that it offers partial protection against bacteremia for about 40 weeks.

Resources

BOOKS

Bennett, J. Claude, and Fred Plum, eds. *Cecil Textbook of Medicine*. Philadelphia, PA: W. B. Saunders Company, 1996.

Civetta, Joseph M., et al, eds. *Critical Care*. Philadelphia, PA: Lippincott-Raven Publishers, 1997.

Fauci, Anthony, et al, eds. *Harrison's Principles of Internal Medicine*. New York, NY: McGraw-Hill, Inc., 1998.

PERIODICALS

Al-Ghamdi, S., M. Gedebou, and N. E. Bilal. "Nosocomial Infections and Misuse of Antibiotics in a Provincial Community Hospital, Saudi Arabia." *Journal of Hospital Infection* 50 (February 2002): 115-121.

Amir, L. "Breastfeeding and *Staphylococcus aureus*: Three Case Reports." *Breastfeeding Review* 10 (March 2002): 15-18.

Bradley, S. F. "*Staphylococcus aureus* Infections and Antibiotic Resistance in Older Adults." *Clinical Infectious Diseases* 34 (January 15, 2002): 211-216.

Cabell, C. H., J. G. Jollis, G. E. Peterson, et al. "Changing Patient Characteristics and the Effect on Mortality in Endocarditis." *Archives of Internal Medicine* 162 (January 14, 2002): 90-94.

Llewelyn, M., and J. Cohen. "Superantigens: Microbial Agents That Corrupt Immunity." *Lancet Infectious Diseases* 2 (March 2002): 156-162.

Shinefeld, H., S. Black, A. Fattom et al. "Use of a *Staphylococcus aureus* Conjugate Vaccine in Patients

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Receiving Hemodialysis." *New England Journal of Medicine* 346 (February 14, 2002): 491-496.

Paula Ford-Martin
Rebecca J. Frey, PhD

Stevia

Definition

Stevia is a genus of plants belonging to the Asteraceae (sunflower) family, tribe Eupatoriae. It consists of 150–300 species, perhaps the best known and most commercially important of which is *S. rebaudiana* Bertoni. In the United States and other English–speaking countries, the plant is also known as candy leaf, sweet honey leaf, sweetleaf, sugarleaf, or, simply, stevia. In Europe, the plant is often classified as *Eupatorium rebaudianum*.

Description

Stevia is native to the New World, with its natural distribution ranging from northeastern Paraguay through southeastern Brazil, Mexico, and Central America, into the southern United States. It is now cultivated in many other parts of the world, including Japan, China, Malaysia, South Korea, and parts of Europe. Stevia is a perennial bush that grows to a height of about 25 to 40 inches. It has long, lance–shaped leaves with finely serrated edges. Small white flowers grow in clusters at the end of stems. The only part of the plant used for medicinal or food purposes is the leaves.

S. rebaudiana is valued for its sweet taste, which is said to be about 300 times as intense as that of sucrose, common table sugar. Sweetness is not a universal characteristic of all stevia species; in fact, only a handful of species exhibit this property, with its being most prominent in *S. rebaudiana*. Early European visitors to South America returned with stories of a wonderful plant, one leaf of which was sufficient to sweeten a large jar of bitter tea.

The Guarani indians of Paraguay and Brazil are said to have used stevia leaves for centuries as a sweetener and a treatment for a variety of medical problems. They added stevia leaves (which they called "kaa he–he", or "sweet her") to the bitter mate tea they drank or simply chewed the leaves to enjoy their unusually sweet taste. They also used the plant to treat **obesity**, **hypertension**, heart problems, **heartburn**, diabetes, dental caries (cavities), **infections**, **fatigue**, and **depression**.

Stevia was introduced to the modern world in 1887 when Dr. Moises Santiago Bertoni, director of the College of Agriculture in Asuncion, Paraguay, was told by his guides about a "very strange plant" during an expedition in eastern Paraguay. It was more than a decade, however, before Bertoni actually received proof of the plant's existence, in the form of a packet of dried stevia leaves. When he first wrote about his discovery in December 1905, he suggested the name *Stevia rebaudiana* for the species. The name was intended to honor Paraguayan chemist Ovidio Rebaudi, who conducted the first analysis of the chemical content of stevia leaves. The variety most commonly used in modern applications is designated as *S. rebaudiana* Bertoni.

Chemists have now identified more than 100 chemical constituents in stevia, many of which are responsible for the plant's intensely sweet taste. They include a group of diterpene glycosides, hydrocarbons produced by plants to which are attached glucose–like constituents. The most common diterpene glycosides found in stevia leaves, which give them their intense sweetness, are stevioside (which has 250–300 the sweetness of sucrose), rebaudioside A (350–450 the sweetness of sugar), rebaudioside C (40–60 the sweetness of sugar), and dulcoside A (30 the sweetness of sugar).

Uses

Proponents of stevia have suggested a number of possible medicinal uses for the herb, including as a treatment for headaches, sinus congestion, rheumatism, diabetes, **food poisoning**, **allergies**, cold and flu, fatigue, **pain**, **acne**, **eczema**, **burns**, cold sores, **psoriasis**, **dandruff**, regulation of blood pressure, digestive disorders, muscular problems, nervous disorders, fluid imbalance, and improper glucose balance in the blood.

By far the most important modern application of stevia, however, is as an artificial sweetener. As concern about the possible health effects of sucrose (common table sugar) have grown over the decades, more and more people have looked to artificial sweeteners in planning their **diets**. In response to this concern, food manufacturers have developed a number of synthetic sweeteners, such as cyclamate, saccharin, aspartame, sucralose, acesulfame **potassium**, alitame, and neotame. The problem is that at least some level of health risk appears to be associated with the use of most of these new products. Some have actually been banned in the United States at one time or another in their history. Stevia appears to be somewhat different from other artificial sweeteners, first because it is not artificial, but a natural product, and second because research has shown that it appears to have no harmful effects on humans. Indeed, evidence exists to suggest that stevia may actually enhance glucose tolerance in humans, making it a logical choice as a sweetener for

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

diabetics. The herb is now widely used as a sweetener in most parts of east Asia, especially in Japan, where it accounts for more than half of the sweetener market, as of 2008. It is also popular as a sweetener throughout South America and the Caribbean.

The use of stevia as a sweetener in North America and Europe has been the subject of considerable controversy since at least the mid–1980s. Agencies responsible for assessing food safety in the European Union, the United Kingdom, and the United States have all expressed concern about the lack of adequate studies on the safety of stevia as a food additive. All three governmental bodies have issued restrictions on the use of stevia and stevia products as food additives. In 1991, the U.S. Food and Drug Administration (FDA) issued a statement calling stevia an unsafe food additive and prohibiting its important into the United States. The FDA's decision has become the focus of an ongoing controversy about the legal status of stevia in the United States. Some people have argued that the decision was based not on scientific evidence, but on political factors, namely efforts to protect the artificial sweetener industry. In 1993, Senator John Kyl of Arizona wrote FDA commissioner David Kessler complaining that the agency's action was "a restraint of trade to benefit the artificial sweetener industry."

Stevia's status in Europe and North America has evolved over time, however. A review by the World Health Organization (WHO) in 2006 of animal and human studies on stevia, for example, found that stevioside and rebaudioside A appear to have no harmful effects in experimental animals or humans and toxic effects observed *in vitro* for steviol (a metabolic product of stevia components) do not appear to be expressed *in vivo*. In the United States, stevia's status assumed a new aspect with the 1994 passage of the Dietary Supplement Health and Education Act. That act redefined the regulatory status of foods, food supplements, and dietary supplements, removing regulatory authority over the last of these from the FDA. Thus, in the United States today, stevia can not be advertised or sold as a food or a food additive, although it can be advertised and sold as a dietary supplement.

KEY TERMS

Dietary supplement—A product that is believed to have some salubrious effect on human health, whether scientific evidence for that effect exists or not. Dietary supplements are not regulated by the FDA.

Diterpene—An organic compound that contains only carbon and hydrogen arranged in a characteristic molecular structure; found commonly in plants and trees

Food additive—A chemical added to food to enhance its flavor, color, appearance, shelf life, or some other quality. Food additives are regulated by the U.S. Food and Drug Administration (FDA).

Glycoside—A sugar–like compound with a molecular structure resembling that of glucose.

In vitro—Literally, "in glass," referring to laboratory experiments that do not make use of living organisms.

In vivo—Literally, "in life," referring to laboratory experiments that make use of living organisms.

Potentiation—The tendency for a substance or treatment to increase the effectiveness of some other substance or treatment.

Side Effects

There are no reports of side effects from using stevia at the amounts normally used for sweetening purposes. Unusually high concentrations of stevia may be associated with **hypoglycemia** (low blood sugar levels) and hypotension (reduced blood pressure). Some studies have shown that experimental animals fed very large doses of chemical extracts of stevia over long periods of time have developed health problems. But the significance of these studies for much smaller amounts of the product in the human diet has not yet been assessed.

Interactions

In quantities significantly greater than those used for normal sweetening purposes, stevia may potentiate antihypertensive and antidiabetic medications. There is no evidence for interactions between stevia and drugs or herbs at the concentrations normally consumed by humans for sweetening purposes.

Resources

BOOKS

Elkins, Rita. *Stevia: Nature's Sweetener*. Chapmanville, W.Va.: Woodland Press, 2007.

Kinghorn, A. Douglas. *Stevia: The Genus Stevia*. London: Taylor & Francis, 2007.

May, James A. *The Miracle Of Stevia: Discover the Healing Power of Nature's Herbal Sweetener*. New York: Kensington Publishing Company, 2003.

Stevia: A Medical Dictionary, Bibliography, And Annotated Research Guide To Internet References. San Diego: ICON Health Publications, 2004.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

PERIODICALS

Ferri, Leticia A. F. "Investigation of the Antihypertensive Effect of Oral Crude Stevioside in Patients with Mild Essential Hypertension." *Phytotherapy Research* (September 2006): 732–736.

Geuns, Jan M. C. "Stevioside." *Phytochemistry* (November 2003): 913–921.

Gregerson, S., et al. "Antihyperglycemic Effects of Stevioside in Type 2 Diabetic Subjects." *Metabolism* (January 2004): 73–76.

Kovylyaeva, G., at al. "Glycosides from Stevia Rebaudiana." *Chemistry of Natural Compounds* (January 2007): 81–85.

Matsukubo, Takashi T, and Ichiro I. Takazoe. "Sucrose Substitutes and Their Role in Caries Prevention." *International Dental Journal* (June 2006): 119–130.

Sapna, Soni, et al. "Pharmacognostic and Phytochemical Investigation of Stevia Rebaudiana." *Pharmacognosy Magazine* (January–March 2008): 89–94.

OTHER

Al-Achi, Antoine, and Robert Greenwood. "Stevia: A Plant for Sweetness?." http://www.uspharmacist.com/oldformat.asp?url=newlook/files/Comp/stevia2.html&pub_id=8&article_id=634 (February 29, 2008).

European Commission, Scientific Committee on Food. "Opinion on Stevia Rebaudiana Bertoni Plants and Leaves." http://www.food.gov.uk/multimedia/pdfs/stevioside.pdf (February 29, 2008).

Herbs Are Special. "Stevia." http://www.herbsarespecial.com.au/free-herb-information/stevia.html (February 29, 2008).

Raintree Nutrition Tropical Plant Database. "Stevia." http://www.rain-tree.com/stevia.htm (February 29, 2008).

Stevia.Net. "A Tale of Incredible Sweetness and Intrigue." http://www.stevia.net/ (February 29, 2008).

David Edward Newton, Ed.D.

Sties

Definition

Also known as a external hordeolum, a stye is an infection or small **abscess** formation within the hair follicle glands on the free edge of the eyelid. These sebaceous glands are also known as Zeis's or Moll's glands.

Stye on a patient's eyelid. *(ISM/Phototake, Reproduced by permission.)*

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Blepharitis—An inflammation of the eyelid.

Hordeolum—The medical term for stye; an infection or small abscess formation in the hair follicle glands of the eyelids.

Sebaceous glands—The oil- or grease-producing glands of the body.

Description

A stye may develop on or under the eyelid with an eyelash within a yellow point. The area becomes red, warm, swollen, and painful. It may also cause blepharitis, an inflammation of the eyelid.

Causes and symptoms

A stye is caused by staphylococcal or other bacterial infection of the sebaceous gland. This infection may be only on the eyelid, or may also be present elsewhere in the body. The presence of a stye may be a sign of the need for glasses, or indicate declining overall health status.

In addition to localized redness, **pain** and swelling, the affected eye may be sensitive to bright light. The individual with a stye may complain of a gritty sensation in the affected eye, and notice that the eye has increased tearing. Once the abscess drains, localized pain and other symptoms quickly resolve.

Diagnosis

Individuals can usually identify a stye from its accompanying symptoms. A laboratory culture of the drainage from the stye may be done to determine the causative organism, allowing identification of the appropriate topical antibiotic drop, ointment or cream, if necessary, to prevent bacterial infection of the rest of the eye.

Treatment

Application of a warm-water compress for 15–20 minutes several times daily will help bring the stye to a point. Most sties drain spontaneously, or with gentle removal of the affected eyelash. The affected individual should avoid hand-to-eye contact, and wash hands frequently, drying thoroughly with clean towels.

A somewhat unusual local treatment that was recommended by a pediatric ophthalmologist for sties that will not drain after several days of warm-water compresses is the application of a hot potato. The hot potato holds heat longer than a washcloth.

Because a stye may also be the result of overall poor health, intake of a well-balanced diet and other measures to strengthen the immune system are helpful in healing and preventing recurrences. Foods rich in **beta carotene**, along with **vitamin C** and A are beneficial in early stages of bacterial infection; herbal remedies include **garlic**, **echinacea**, **goldenseal**, **calendula**, and **tea tree oil**. Focus on a healthy lifestyle will also include getting enough rest, exercising regularly, and limiting negative **stress**. **Yoga**, **meditation**, and **guided imagery** may be helpful for stress reduction and **relaxation**. Eye irritation from **smoking** or other chemical or environmental factors should be avoided.

Allopathic treatment

Self-care is often adequate in resolving a stye; however, surgical incision and drainage of the abscess may occasionally be necessary. While oral or injectable antibiotics are not usually needed, antibiotic drops, ointments or creams may be prescribed to hasten healing and prevent spread of the infection. A physician should also be consulted for any notable change in vision or pain in the eye.

Expected results

A stye usually resolves completely within five to seven days after it has drained. Even with treatment, recurrence is not uncommon, especially in children. Patients with seborrheic blepharitis (nonulcerated inflammation of the eyelid) are also more likely to develop recurrent sties.

Prevention

Measures to improve overall health and strengthen the immune status will help prevent complications and recurrence. Crowded or unsanitary living conditions will predispose individuals to illnesses that can lower resistance to **infections**. Frequent exposure to dust and other chemical/environmental factors will irritate the eyes and can increase the risk of stye formation.

Resources

BOOKS

Dillard, James, and Terra Ziporyn. *Alternative Medicine for Dummies*. Foster City, CA: IDG Books Worldwide, Inc., 1998.

PERIODICALS

Giusti, Robert. "Don't Pass This Hot Potato." *Contemporary Pediatrics* 18 (November 2001): 116.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Skorin Jr., Leonid. "Eyelid Swelling: What's the Underlying Cause?" *Consultant* 41 (October 2001): 1624–1630.

OTHER

Thrive Online. http://www.thriveonline.com/health/Library.

Kathleen Wright
Rebecca J. Frey, PhD

Stiff neck *see* **Neck pain**
Stinging nettle *see* **Nettle**

KEY TERMS

Dysmotility—Abnormally slow or fast rhythmic movement of the stomach or intestine.

Dyspepsia—Recurrent or persistent pain in the upper abdomen.

Gastrointestinal—Pertaining to the stomach and intestine.

Stomachaches

Definition

Stomachache is **pain** or discomfort in the stomach that is a symptom of many different gastrointestinal diseases or conditions.

Description

Stomachache, also called dyspepsia, is a symptom of an underlying disease or condition of the gastrointestinal system. Stomachache is defined as pain or discomfort in the upper abdomen. Discomfort refers to any negative feeling including fullness, bloating, or early satiety (quenched thirst or appetite).

Dyspepsia accounts for 2–5% of all visits to a physician. Unfortunately, no cause is found for 30–60% of patients with dyspepsia. When no cause is found, the disorder is termed nonulcer dyspepsia. Several factors may lead to nonulcer dyspepsia. Delayed emptying of the stomach contents and stomach and intestinal rhythmic movement (motility) disorders can lead to dyspepsia. Some persons have lower sensory thresholds for stomach distension and more readily experience stomachache. Abnormal release of stomach acids may also be associated with dyspepsia.

Studies performed around the world have determined that between 7–41% of the population suffer from dyspepsia. This wide variation is most likely due to differences in study methods, not differences in the prevalence of dyspepsia.

Causes and symptoms

The occasional stomachache is usually caused by overeating, stomach **gas**, eating foods that do not agree with a person's digestive system, drinking too much alcohol, **food poisoning**, or gastrointestinal infection. **Obesity** places extra pressure on the stomach that can cause pain. **Smoking** increases stomach acid production and relaxes the valve between the stomach and the esophagus, both of which can cause stomach pain.

Because there are many causes of dyspepsia, physicians try to fit each case into one of five categories based upon the set of symptoms. Nonulcer dyspepsia refers to long-term or recurrent pain in the upper abdomen that has no identified structural cause. Ulcer-like dyspepsia refers to abdominal pain with three or more of the following symptoms: well-localized pain, pain relieved by eating, pain relieved by antacids, pain occurring when hungry, pain that disrupts sleep, or pain that comes and goes for at least two week intervals. Dysmotility-like dyspepsia refers to upper abdominal discomfort, not pain, with three or more of the following: early satiety, **nausea**, fullness after eating, recurrent retching or **vomiting**, bloating, or abdominal discomfort worsened by food. Reflux-like dyspepsia is stomach pain accompanied by **heartburn**. Nonspecific dyspepsia refers to patients whose symptoms do not fit into the other categories.

Specific causes of stomachaches include:

- Biliary tract disease, disorders of the gallbladder, bile, and bile ducts. Biliary pain is a severe, persistent pain in the upper middle or upper right region of the abdomen.
- Drug-induced dyspepsia, which may be caused by digitalis, theophylline, antibiotics, and iron or potassium supplements.
- Dysmotility disorders, gastrointestinal motility that is either too fast or too slow, and may lead to abdominal pain.
- Gastric cancer, although a rare cause of stomachache, needs to be considered in the diagnosis of stomachache because of the seriousness of the disease.
- Gastroesophageal reflux, causes a burning pain or discomfort that travels up to the throat. This common disorder affects up to 50% of adults.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

- Irritable bowel syndrome, a chronic disease characterized by abdominal pain and changes in bowel functioning (diarrhea and/or constipation).
- Pancreatic disease, including pancreatitis (inflammation of the pancreas) and pancreatic cancer, can cause severe, persistent pain that may travel to the back.
- Peptic ulcer, refers to any ulcer (a defect or hole) of the upper digestive tract.
- Psychiatric disease, such as depression, panic disorder, and eating disorders, can lead to stomach pains.
- Other disorders. Stomachaches may be caused by diabetes mellitus, hypothyroidism, hypercalcemia, ischemic heart disease, intestinal angina, certain cancers, Crohn's disease, tuberculosis, and syphilis. In addition, abdominal muscle strain, myositis, and nerve entrapment can cause abdominal pain which could be confused with dyspepsia.

Stomachache is a discomfort or pain in the upper abdomen. The patient may experience other symptoms as well, depending upon the cause of the stomachache. Stomachache must be experienced for three months to be considered chronic (long-term). Persons who experience recurrent vomiting, weight loss, dysphagia (swallowing difficulty), or bleeding should seek prompt medical attention.

Diagnosis

Stomachache may be diagnosed by an internal medicine specialist or a gastroenterologist. Because diagnosing dyspepsia can be time consuming and expensive, all attempts are made to first rule out a structural cause of the pain to prevent the use of unnecessary tests. The diagnostic process would include a thorough medical history and physical examination.

The presence of *Helicobacter pylori*, a common cause of ulcer, in the stomach would be determined. There is a higher risk for structural disease in persons older than 45 years, therefore, these persons would undergo upper gastrointestinal endoscopy (upper GI). Endoscopy is the use of a wand-like camera to visualize internal organs, including the stomach and intestinal tract.

If ulcer has been ruled out, then an upper GI (an x-ray study of the upper GI tract) and several blood tests would be performed. Ultrasound (visualization of internal organs using sound waves) may be performed to view the liver, pancreas, and gall bladder. More specific tests which may be conducted include lactose tolerance test, stomach emptying study, gastroduodenal manometry (measures pressure and motility of the stomach and small intestine), electrogastrography (measures electrical activity of the stomach), and a esophageal pH testing (measures the pH in the pipe running from the throat to the stomach).

Treatment

Alternative remedies can be effective in treating stomachache and associated digestive symptoms. Persons who experience chronic, unexplained stomach pain should consult a physician.

Herbals

The following herbal remedies help treat stomachaches:

- agave (*Agave americana*) tincture
- asafoetida (*Ferula asafoetida*) tincture
- cumin (*Cumin cyminum*) seed poultice

When gas is the reason for discomfort, these herbals can be used:

- angelica (*Angelica archangelica*) infusion
- anise (*Pimpinella anisum*) infusion
- catnip (*Nepata cataria*) tea
- oatstraw (*Avena sativa*) tea

Indigestion accompanied by gas or due to increased stomach acid production can be soothed by the following herbals:

- arrowroot (*Maranta arundinacea*) infusion
- calendula (*Calendula officinalis*) and comfrey root tea
- cardamon (*Elettaria cardamomum*) powder
- fennel (*Foeniculum vulgare*) infusion
- galbanum (*Ferula gummosa*) infusion: acid indigestion
- iceland moss (*Cetraria islandica*) infusion
- marsh mallow (*Althaea officinalis*) tea
- meadowsweet (*Filipendula ulmaria*) tea
- slippery elm (*Ulmus fulva*) powder or tea

Other disorders causing stomach pain and discomfort can be relieved with these herbals:

- asian red ginseng (*Panax ginseng*) tea or tincture: stomach pain and bloating
- chamomile (*Chamomilla recutita*) tea: upset stomach, gas, and stomach spasm
- crab apple (flower remedy): stomachaches caused by bad food
- crampbark (*Viburnum opulus*) infusion: stomach spasm
- dandelion (*Taraxacum officinale*) root tea or tincture: heartburn, stomachache, and gas
- elderberry (*Sambucus nigra*) tea: stomach pain
- ginger (*Zingiber officinale*) raw or tea

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

- lemon balm (*Melissa officinalis*) tea: stomach spasm, gas, and bloating
- licorice (*Glycyrrhiza glabra*) root tea or tincture: heartburn and acid reflux
- peppermint (*Mentha piperita*) tea: upset stomach, gas, and stomach spasm
- thyme (*Thymus vulgaris*) tea: upset stomach

Homeopathy

Homeopathic remedies are chosen based upon the specific set of symptoms displayed by the patient. **Bryonia** is indicated for stomach pain that is worsened by motion. Colocynthis or Magnesia phosphorica is recommended for pain that is relieved by doubling up. Cuprum is indicated for violent, cramping pain. Dioscorea is chosen for pain that is lessened by standing up and worsened by doubling up. **Lycopodium** is indicated for persons who get bloated after eating or whose pain is worsened by pressure. Magnesia phosphorica is recommended for pain that is relieved by pressure. Nux vomica is indicated for stomach pain that occurs after eating rich or spicy foods or too much alcohol. **Pulsatilla** is chosen for persons who experience digestive symptoms after eating fatty foods.

Chinese medicine

Traditional Chinese medicine (TCM) treats stomachaches with **acupuncture**, ear acupuncture, **cupping**, herbs, and patent medicines. Common syndromes that cause abdominal pain include: Damp-heat stagnation, retention of cold, retention of food, deficiency and coldness of Zang Fu, and stagnation of qi and blood.

Abdominal pain caused by deficiency and cold is treated with Fu Zi Li Zhong Wan (prepared **Aconite** pill to regulate the middle). Abdominal pain caused by cold is treated with Liang Fu Wan (Galagal and **Cyperus** pill). All causes of abdominal pain (except damp-heat) may be treated with a mixture of Yan Hu Suo (*Rhizoma corydalis*), Chen Xiang (*Lignum aquilariae resinatum*), and Rou Gui (*Cortex cinnamomi*).

Ayurveda

Ayurvedic practitioners believe that indigestion is due to weak or insufficient agni (digestive fire). To enhance digestion, the patient can take fresh **ginger**; a mixture of **garlic** powder (one quarter teaspoon), trikatu (one half teaspoon), and rock salt (pinch); or a mixture of garlic (one clove), cumin powder (one quarter teaspoon), rocksalt (pinch), trikatu (pinch), and lime juice (one teaspoon) before meals. Bay leaf tea drunk after meals can enliven agni. Digestion may be enhanced with Shatavari or Teak tree (*Tectona grandis*) wood or bark.

Chronic indigestion and stomachaches may be relieved by taking a mixture of trikatu (one part), chitrak (two parts), and kutki (one part) with honey and ginger juice before meals. Common stomachaches may be relieved by taking a shankavati or lasunadivati pill twice daily; ajwan (one half teaspoon) and baking soda (one quarter teaspoon) in water; a mixture of cumin powder (one third teaspoon), asafetida (pinch), and rock salt (pinch) in water; or chewing one half teaspoon of roasted **fennel**, cumin, and coriander seeds.

Other treatments

Other treatments for stomachaches are:

- Acupressure. Pressing both Sp 16 points (located below the bottom of the rib cage) can relieve stomachaches.
- Aromatherapy. Sucking on a sugar cube containing one drop of the essential oil of peppermint can ease stomachaches. Taking honey containing one drop of essential oil of tarragon, marjoram, or rosemary reduces digestive tract spasms.
- Hydrotherapy. Stomachache can be relieved by drinking water containing activated charcoal powder. A hot water bottle or hot compress placed over the abdomen can help relieve stomach pains.
- Juice therapy. Digestion can be improved and gas dispelled by drinking fresh apple juice with mint, fennel, and ginger.

Allopathic treatment

Stomachaches may be treated with over the counter antacids (Tums, Pepto-Bismol) and antigas products (Gas-X). An *H. pylori* infection is treated with a combination of tetracycline, bismuth subsalicylate (Pepto-Bismol), and metronidazole (Metizol). Non-ulcer dyspepsia may be treated with the proton pump inhibitors omeprazole (Prilosec) and lansoprazole (Prevacid); the H_2 receptor antagonists ranitidine (Zantac), cimetidine (Tagamet), famotidine (Pepcid), and nizatidine (Axid); or the prokinetic drug cisapride.

Stomachaches that are caused by diseases such as **cancer**, diabetes, **pancreatitis**, etc. would be treated using the specific medications and procedures recommended for the particular disease.

Expected results

Stomachaches may resolve spontaneously. Medical treatment of stomachaches can relieve symptoms temporarily but a cure is not expected.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Prevention

Common stomachaches can be prevented by avoiding the following: overeating, excessive alcohol consumption, problem foods, and smoking. Stomachaches may be prevented by enhancing digestion by taking fresh ginger or Draksha (Ayurvedic herbal wine) before meals. Ginger or bay leaf tea or lassi (yogurt with cumin and ginger powders in water) taken after meals can aid digestion and prevent stomachaches. Drinking warm drinks during meals aids digestion as does chewing food thoroughly. Persons should only eat when hungry and leave space in the stomach for proper digestion. Obesity can increase problems like reflux, and a 2001 study found a strong connection between obesity and severity of reflux.

Resources

BOOKS

Reichenberg-Ullman, Judyth, and Robert Ullman. *Homeopathic Self-Care: The Quick and Easy Guide for the Whole Family*. Rockland, CA: Prima Publishing, 1997.

Talley, Nicholas J., and Gerald Holtmann. "Approach to the Patient With Dyspepsia and Related Functional Gastrointestinal Complaints." *Textbook of Gastroenterology*. 3rd ed. Edited by Tadataka Yamada, et al. Philadelphia: Lippincott Williams & Wilkins, 1999.

Ying, Zhou Zhong, and Jin Hui De. "Abdominal Pain." *Clinical Manual of Chinese Herbal Medicine and Acupuncture*. New York: Churchill Livingston, 1997.

PERIODICALS

Cavalli, Ellen. "Relief for Holiday Pigouts." *Vegetarian Times* (November 1999): 94+.

"Fast Lives Bring on the Burn." *Chemist and Druggist* (November 10, 2001): 37.

Levine, Beth. "How to Treat Any Kind of Tummyache." *Redbook* 190 (April 1998): 145+.

Sullivan, Karin Horgan. "Oh, What a Relief it is: Herbs to Soothe an Upset Stomach." *Vegetarian Times* (November 1996): 94+.

Wajed, Shahjehan A. "Elevated Body Mass Disrupts the Barrier to Gastroesophageal Reflux." *The Journal of the American Medical Association* (December 5, 2001): 2650.

ORGANIZATIONS

The American Gastroenterological Association (AGA). 7910 Woodmont Ave., 7th Floor, Bethesda, MD 20814. (310) 654-2055. http://www.gastro.org/index.html.

Belinda Rowland
Teresa Norris

Stomatitis *see* **Cantharis**

Stone massage

Definition

Stone massage is a form of bodywork that involves the application of heated or cooled stones (thermotherapy) to the body during deep tissue massage.

Origins

The use of materials of different temperatures on the body to bring about healing is an ancient technique. Stones have been used in many cultures, such as in the Native American sweat lodge, to adjust the temperature of the healing environment. Traditional **lomilomi** (Hawaiian massage) goes further and applies heated stones directly to the body.

Although stones have been used for many years as an adjunct to bodywork, their use was formalized in 1993 by Mary Nelson-Hannigan of Tucson, Arizona. Nelson-Hannigan developed a form of massage using a system of 54 hot stones, 18 frozen stones, and one room-temperature stone, which she calls LaStone Therapy. In addition to the use of stones as an extension of the therapist's hands in deep tissue massage, LaStone Therapy involves a spiritual element that opens energy channels (chakras) in the body, unblocks memories, and brings about spiritual healing.

Benefits

Stone therapy has benefits for both the client and the massage therapist. For the client the application of heat and cold on the body:

- Stimulates the circulatory system and promotes self-healing.
- Softens and relaxes the muscles.
- Helps to release toxins from the muscles.
- Induces a state of deep relaxation that washes away stress.
- Helps relieve pain and muscle spasms.
- Creates a feeling of peacefulness and spiritual well-being.

Stone therapy also benefits the massage therapist. It reduces **stress** and strain on the therapist's hands, wrists, and arms so that the therapist can work longer and more efficiently. The stones do the heavy work, so that the possibility of repetitive stress injuries to the therapist's thumbs and wrists is decreased.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Chakras—The energy centers located at points along the body, usually identified as seven in number in yoga and other Eastern healing therapies. Stone massage works to open the chakras, as well as relax the physical body.

Description

In many ways a stone massage session is similar to any other type of massage. The stones are heated (usually to about 130°F or 34°C) or frozen prior to the client's arrival. Massage oil is spread on the client's back and legs. The stones are then worked over the body. The client turns over and the process is repeated on the arms, hands, and fingers. The final parts to be massaged are the neck, head, and face.

Preparations

The client needs no special preparation before receiving a stone massage. The therapist prepares the stones in advance and maintains them at the proper temperatures.

Precautions

No special precautions are necessary in having a stone massage session. This type of massage is suitable for almost everyone.

Side effects

Generally a stone massage produces only the positive side effects of a feeling of peacefulness and spiritual renewal. No negative side effects have been reported.

Research and general acceptance

The use of stones to alter body temperature has been used for centuries. Little modern research has been done on its effectiveness, although it is a generally accepted technique.

Training and certification

LaStone Therapy offers its own certification for people already trained as massage therapists who complete specific courses in LaStone Therapy. Many of these courses are recognized for credit by the American **Massage Therapy** Association, the International Myomassethics Federation, Inc., the National Certification Board For Therapeutic Massage & Bodywork, and the Associated Bodywork and Massage Professionals.

Resources

ORGANIZATIONS

American Massage Therapy Association. 820 Davis Street, Suite 100. Evanston, IL 60201. (847) 864-0123.

LaStone Therapy. 2919 E. Broadway Blvd., Suite 224. Tucson, AZ 85716. (520) 319-6414. http://www.lastonetherapy.com.

OTHER

Alaska Wellness. http://www.alaskawellness.com *The Original Hot Stone Massage.*

Tish Davidson

Strep throat

Definition

Streptococcal **sore throat**, or strep throat as it is more commonly called, is an infection of the mucous membranes lining the pharynx (throat). Sometimes the tonsils are also infected (**tonsillitis**). The disease is caused by group A *Streptococcus* bacteria. Untreated strep throat may develop into **rheumatic fever** or other serious conditions.

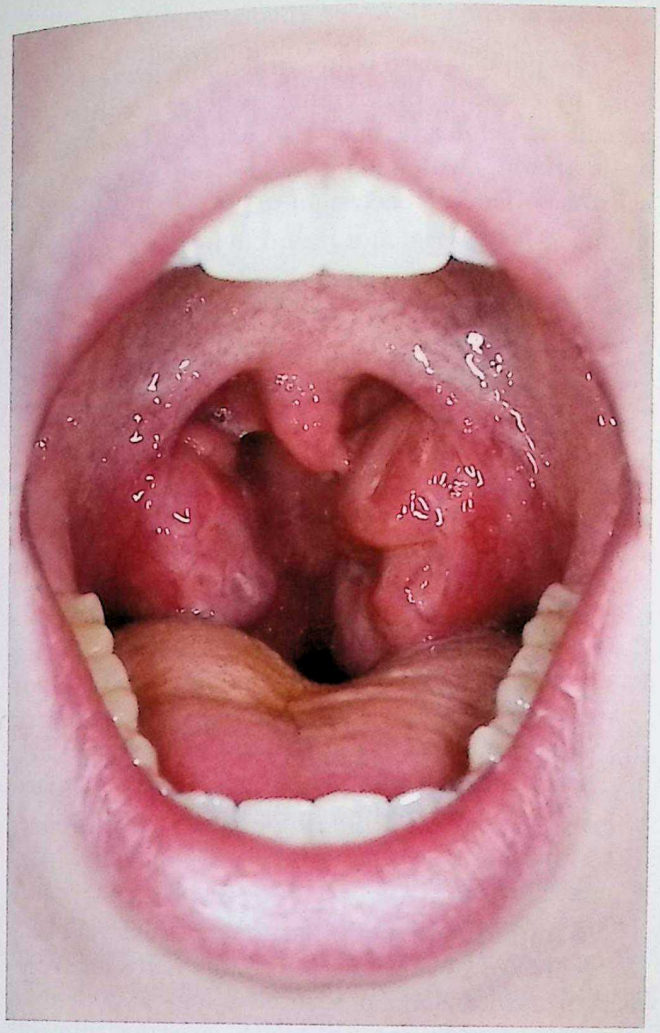
Description

Strep throat occurs most frequently from November to April. The disease passes directly from person to person by coughing, **sneezing**, and close contact. Very occasionally the disease is passed through food, when a food handler infected with strep bacteria accidentally contaminates food by coughing or sneezing. Statistically, if someone in the household is infected, one out of every four other household members is likely to get strep throat within two to seven days.

Although anyone can get strep throat, it primarily affects children, especially those between the ages of five and 15. Adults whose immune systems have been weakened by **stress** or other **infections** are also at risk, as are people who smoke, who are fatigued, highly stressed, or who live in damp, crowded conditions. Children under age two and adults who are not around children are less likely to get the disease; their sore throats are usually caused by viruses, not strep bacteria.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri



Strep throat. *(© Scott Camazine / Alamy)*

Most sore throats are caused by viruses. Bacteria infections are responsible for only about 10%–15% of cases. In the northern hemisphere, Strep throat occurs most frequently from November to April. The disease passes directly from person to person by coughing, sneezing, and close contact. Very occasionally the disease is passed through food, when a food handler infected with strep bacteria accidentally contaminates food by coughing or sneezing. Statistically, if someone in the household is infected, one out of every four other household members is likely to get strep throat within two to seven days.

Many people have some form of strep bacteria in their body at some point during their lives. The bacteria can survive in the lining of the throat or nose for years without producing symptoms. A person who hosts bacteria without showing signs of infection is considered a carrier. Carriers who are symptom- free are less likely to infect others than people with active strep infections.

Causes and symptoms

A person with strep throat suddenly develops a painful sore throat one to five days after being exposed to streptococcus bacteria. The **pain** is indistinguishable from sore throats caused by other types of bacteria or viruses. Strep throat is often mistaken as a symptom of a cold. Unlike a cold, strep throat does not usually produce **cough** or a stuffy, runny nose.

The infected person usually feels tired and has a **fever**, sometimes accompanied by **chills**, **headache**, muscle aches, swollen lymph glands, and **nausea**. Young children may complain of abdominal pain. The tonsils look swollen and are bright red, with white, grayish, or yellow patches of pus on them. Sometimes the roof of the mouth is red or has small red spots. Often a person with strep throat has bad breath.

Despite these common symptoms, strep throat can be deceptive. It is possible to have the disease and not show any of these symptoms. Many young children complain only of a headache and stomach ache, without the characteristic sore throat symptoms. Nausea and occasionally **vomiting** also may occur in children.

It is important to identify and treat strep throat promptly because if left untreated, it can lead to serious health problems. Occasionally within a few days of developing the sore throat, an individual may develop a fine, rough, sunburn-like rash over the face and upper body and have a fever of 101–104°F (38.3–40°C). The tongue becomes bright red, with a flecked, strawberry-like appearance. When a rash develops, this form of strep throat is called **scarlet fever**. The rash is a reaction to toxins (poisons) released by streptococcus bacteria. Scarlet fever is no more dangerous than strep throat, and it is treated in the same way. The rash disappears in about five days. One to three weeks later, patches of skin may peel off, as might occur with a **sunburn**, especially on the fingers and toes.

Although scarlet fever is no more serious than strep throat, rheumatic fever rheumatic **heart disease** (damage to the heart caused by rheumatic fever) are serious illnesses that can develop from untreated strep infections. Rheumatic fever is uncommon in the United States because most people with strep infections; it does not occur if all the streptococcus bacteria are killed with antibiotic treatment within the first 10–12 days after infection Worldwide, however, 90,000 people are estimated to die from rheumatic heart disease each year, with the highest rates occurring in developing countries.

Rheumatic fever occurs most often in children between the ages of five and 15. It begins one to six

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

weeks after an untreated streptococcal infection. The joints, especially the wrists, elbows, knees, and ankles become red, sore, and swollen. The infected person develops a high fever, and possibly a rapid heartbeat when lying down, paleness, shortness of breath, and fluid retention. A red rash over the trunk may come and go for weeks or months. An acute attack of rheumatic fever lasts about three months.

Rheumatic fever can cause permanent damage to the heart and heart valves. It can be prevented by promptly treating streptococcal infections with antibiotics. Although the strep throat that causes rheumatic fever is contagious, rheumatic fever itself is not.

Diagnosis

Diagnosis of strep throat by a doctor begins with a physical examination of the throat and chest. The doctor will also look for signs of other illness, such as a **sinus infection** or **bronchitis**, and seek information about whether the patient has been around other people with strep throat. If it appears that the patient may have strep throat, the doctor will do laboratory tests.

A rapid strep test is a painless test that involves using a swab to remove a specimen from the throat of the infected person. The results of the test are available in 10–20 minutes. If the rapid strep test is negative, the doctor may send a similar specimen to a laboratory to have a throat culture performed because rapid strep tests have a false negative rate of about 25% (that is, about one-quarter of people whose test shows that they do not have strep throat actually do have strep). The laboratory culture test takes a day or two to complete and is highly accurate. A negative culture usually indicates that the cause is viral in nature, in which case antibiotics will not be effective in fighting the disease.

Treatment

Conventional medicine is very successful in treating strep throat. However, several alternative therapies may help to resolve the disease or relieve symptoms. Herbal remedies such as **echinacea** (*Echinacea* spp.), **goldenseal** (*Hydrastis canadensis*), and **garlic** (*Allium sativum*) are believed to strengthen the immune system and combat bacterial infections.

Goldenseal

One of the active agents in goldenseal is a chemical called berberine. This alkaloid is believed to have antibiotic effects against streptococci bacteria. Goldenseal is also believed to increase the activity of disease-fighting white blood cells.

Echinacea

This popular herb fights viral and bacterial infections by boosting the immune system, according to herbalists. Echinacea may also combat strep throat by interfering with hyaluronidase, an enzyme that helps the offending bacterium to grow and spread.

Garlic

The focus of hundreds of medical studies and papers, garlic is believed to be an antibiotic as well as an antiviral. As an added benefit, garlic may also prevent **atherosclerosis**, lower **cholesterol** levels, and act as an antioxidant.

Zinc and ginger

Zinc and **ginger** (*Zingiber officinale*) are sometimes recommended to help treat symptoms of sore throat. In addition to strengthening the immune system, zinc may reduce throat inflammation and pain regardless of the cause. Ginger may have analgesic properties and ease throat irritation. **Vitamin C** may also help to boost the immune system. In some studies, it has been shown to shorten the duration of colds.

Easing symptoms

Many other alternative treatment focuses on easing the symptoms of strep throat through herbs and botanical medicines. Some practitioners suggest using these treatments in addition to antibiotics, since they primarily address the comfort of the patient and not the underlying infection. Many practitioners recommend *Lactobacillus acidophilus* to offset the suppressive effects of antibiotics on the beneficial bacteria of the intestines.

Some suggested treatments include:

- Inhaling fragrances of the essential oils of lavender (*Lavandula officinalis*), thyme (*Thymus vulgaris*), eucalyptus (*Eucalyptus globulus*), sage (*Salvia officinalis*), and sandalwood (Aromatherapy).
- Gargling with a mixture of water, salt, and tumeric (*Curcuma longa*) powder or astringents, such as alum, sumac, sage, and bayberry (Ayurvedic medicine).
- Taking osha root (*Ligusticum porteri*) internally for infection or drinking tea made of sage, echinacea (*Echinacea* spp.) and cleavers (*Gallium aparine*) Osha root has an unpleasant taste many children will not accept (Botanical medicine).

Homeopathy

In the practice of **homeopathy**, **belladonna**, **lachesis**, and mercurius vivus are usually the remedies of choice for strep throat and other causes of throat

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

irritation. Which remedy to use depends on the exact nature of the symptoms. These homeopathic treatments are not recommended for more than a few days or symptoms may actually return.

Allopathic treatment

Antibiotics, the conventional treatment of choice, are very effective in curing strep throat. Without treatment, the symptoms of strep throat begin subsiding in four or five days. However, because of the possibility of developing rheumatic fever, it is important to treat strep throat promptly with antibiotics.

Ten days of oral penicillin is a typical course of therapy. Patients need to take the entire amount of antibiotic prescribed and not to discontinue taking the medication when they feel better. Stopping the antibiotic early can lead to a return of the strep infection. Occasionally, a single injection of long-acting penicillin (Bicillin) is given instead of 10 days of oral treatment.

About 10% of the time, penicillin is not effective against the strep bacteria. When this happens a doctor may prescribe other antibiotics such as cefuroxime (Ceftin), cefixime (Suprax), cefpodoxime proxetil (Vantin), loracarbef (Lorabid), cefditoren (Spectracef), azithromycin (Zithromax), clindamycin (Cleocin), or a cephalosporin (Keflex, Durocef, Ceclor). Erythromycin (Eryzole, Pediazole, Ilosone), another inexpensive antibiotic, can be given to people who are allergic to penicillin. Scarlet fever is treated with the same antibiotics as strep throat.

Home care for strep throat

These are home care steps may ease the discomfort of strep throat.

- Take acetaminophen or ibuprofen for pain. Aspirin should not be given to children because of its association with an increase in Reye's Syndrome, a serious disease.
- Gargle with warm double strength tea or warm salt water, made by adding one teaspoon of salt to eight ounces of water, to relieve sore throat pain.
- Drink plenty of fluids, but avoid acidic juices like orange juice because they irritate the throat.
- Eat soft, nutritious foods such as noodle soup. Avoid spicy foods.
- Avoid smoke and smoking.
- Rest until the fever is gone, then resume strenuous activities gradually.
- Use a room humidifier, as it may help ease throat irritation.
- Be aware that antiseptic lozenges and sprays may aggravate the sore throat rather than improve it.

KEY TERMS

Analgesic—Pain reliever.

Antioxidant—A molecule that prevents oxidation. In the body antioxidants attach to other molecules called free radicals and prevent the free radicals from causing damage to cell walls, DNA, and other parts of the cell

Lactobacillus acidophilus—A bacteria found in yogurt that changes the balance of the bacteria in the intestine in a beneficial way.

Expected results

The symptoms associated with strep throat usually begin to disappear within several days, even without treatment. When antibiotics are used, fever may subside within 24 hours, and the course of the illness may be shortened by two days. People who have taken an atnibiotic for 24 hours are normally no longer contagious.

People who use alternative remedies in the absence of antibiotics should consult a doctor if symptoms do not subside within a week. Because of the potential risk of life-long heart damage from rheumatic fever, the use of antibiotics is strongly recommended.

Prevention

Washing the hands frequently can help to prevent strep throat. Exposure to infected people should also be avoided. In order to prevent transmission of the disease within households, consult a doctor if any family member suddenly develops a sore throat (especially if it is accompanied by fever).

Boosting the immune system is also important to help prevent the development of strep throat. Vitamin C and zinc are often recommended for this purpose, as are goldenseal, echinacea, and garlic. Reducing stress and getting proper sleep can also strengthen the body's defenses against infection.

Resources

BOOKS

Fauci, Anthony, et al., eds. *Harrison's Principles of Internal Medicine*, 17th ed. New York, NY: McGraw-Hill, 2008.

Laskey, Elizabeth. *Strep Throat* Chicago: Heinemann Library, 2003.

Offit, Paul A. *Breaking the Antibiotic Habit: A Parent's Guide to Coughs, Colds, Ear Infections, and Sore Throats*. New York: John Wiley, 1999.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

OTHER

"Group A Streptococcal Infections." *National Institute of Allergy and Infectious Diseases*. September 17, 2007 [cited February 21, 2008]. http://www3.niaid.nih.gov/healthscience/healthtopics/streptococcal/default.htm.

"Strep Throat." *Mayo Clinic*. Nov 3, 2008 [cited February 21, 2008]. http://www.mayoclinic.com/health/strep-throat/DS00260.

"Strep Throat." *Web MD* August 19, 2006 [cited February 21, 2008]. http://www.webmd.com/a-to-z-guides/strep-throat-topic-overview.

ORGANIZATIONS

Alternative Medicine Foundation, P. O. Box 60016, Potomac, MD, 20859, (301) 340-1960, http://www.amfoundation.org.

American Holistic Medical Association, P. O. Box 2016 , Edmonds, WA, 98020, (425) 967-0737, http://www.holisticmedicin.org.

Greg Annussek
Rebecca J. Frey, Ph.
Tish Davidson, A. M.

KEY TERMS

Adjustment disorder—A psychiatric disorder marked by inappropriate or inadequate responses to a change in life circumstances.

Biofeedback—A technique in which patients learn to modify certain body functions, such as temperature or pulse rate, with the help of a monitoring machine.

Burnout—An emotional condition, marked by tiredness, loss of interest, or frustration, that interferes with job performance. Burnout is usually regarded as the result of prolonged stress.

Stress hardiness—A personality characteristic that enables persons to stay healthy in stressful circumstances. It includes belief in one's ability to influence the situation; being committed to or fully engaged in one's activities; and having a positive view of change.

Stress management—A category of popularized programs and techniques intended to help people deal more effectively with stress.

Stressor—A stimulus or event that provokes a stress response in an organism. Stressors can be categorized as acute or chronic, and as external or internal to the organism.

Stress

Definition

Stress is an individual's physical and mental reaction to environmental demands or pressures.

Description

When stress was first studied, the term was used to denote both the causes and the experienced effects of these pressures. More recently, however, the word stressor has been used for the stimulus that provokes a stress response. One recurrent disagreement among researchers concerns the definition of stress in humans. Is it primarily an external response that can be measured by changes in glandular secretions, skin reactions, and other physical functions, or is it an internal interpretation of, or reaction to, a stressor; or is it both?

Stress was first studied in 1896 by Walter B. Cannon (1871–1945). Cannon used an x-ray instrument called a fluoroscope to study the digestive system of dogs. He noticed that the digestive process stopped when the dogs were under stress. Stress triggers adrenal hormones in the body and the hormones become unbalanced. Based on these findings, Cannon continued his experimentation and came up with the term homeostasis, a state of equilibrium in the body.

Hans Selye, a Canadian scientist (1907–1982), noticed that people who suffered from chronic illness or disease showed some of the same symptoms. Selye related this to stress and he began to test his hypothesis. He exposed rats to different physical stress factors such as heat, sound, poison, and shock. The rats showed enlarged glands, shrunken thymus glands and lymph nodes, and gastric ulcers. Selye then developed the Three Stage Model of Stress Response. This model consisted of alarm, resistance, and exhaustion. Selye also showed that stress is mediated by cortisol, a hormone that is released from the adrenal cortex. This increases the amount of glucose in the body while under stress.

Stress in humans results from interactions between persons and their environment that are perceived as straining or exceeding their adaptive capacities and threatening their well-being. The element of perception indicates that human stress responses reflect differences in personality, as well as differences in physical strength or general health.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Risk factors for stress-related illnesses are a mix of personal, interpersonal, and social variables. These factors include lack or loss of control over one's physical environment, and lack or loss of social support networks. People who are dependent on others (e.g., children or the elderly) or who are socially disadvantaged (because of race, gender, educational level, or similar factors) are at greater risk of developing stress-related illnesses. Other risk factors include feelings of helplessness, hopelessness, extreme fear or anger, and cynicism or distrust of others.

Causes and symptoms

Causes

The causes of stress can include any event or occurrence that a person considers a threat to his or her coping strategies or resources. Researchers generally agree that a certain degree of stress is a normal part of a living organism's response to the inevitable changes in its physical or social environment, and that positive, as well as negative, events can generate stress as well as negative occurrences. Stress-related disease, however, results from excessive and prolonged demands on an organism's coping resources. It is now believed that 80–90% of all disease is stress-related.

Recent research indicates that some vulnerability to stress is genetic. Scientists at the University of Wisconsin and King's College London discovered that people who inherited a short, or stress-sensitive, version of the serotonin transporter gene were almost three times as likely to experience **depression** following a stressful event as people with the long version of the gene. Further research is likely to identify other genes that affect susceptibility to stress.

One cause of stress that has affected large sectors of the general population around the world since 2001 is terrorism. The events of September 11, 2001, the sniper shootings in Virginia and Maryland and the Bali nightclub bombing in 2002, the suicide bombings in the Middle East in 2003, have all been shown to cause short-term symptoms of stress in people who read about them or watch television news reports as well as those who witnessed the actual events. Stress related to terrorist attacks also appears to affect people in countries far from the location of the attack as well as those in the immediate vicinity. It is too soon to tell how stress related to episodes of terrorism will affect human health over long periods of time, but researchers are already beginning to investigate this question.

Symptoms

The symptoms of stress can be either physical and/or psychological. Stress-related physical illnesses, such as irritable bowel syndrome, heart attacks, and chronic headaches, result from long-term over-stimulation of a part of the nervous system that regulates the heart rate, blood pressure, and digestive system. Stress-related emotional illness results from inadequate or inappropriate responses to major changes in one's life situation, such as marriage, completing one's education, the death of a loved one, divorce, becoming a parent, losing a job, or retirement. Psychiatrists sometimes use the term adjustment disorder to describe this type of illness. In the workplace, stress-related illness often takes the form of burnout—a loss of interest in or ability to perform one's job due to long-term high stress levels.

Diagnosis

When the doctor suspects that a patient's illness is connected to stress, he or she will take a careful history that includes stressors in the patient's life (family or employment problems, other illnesses, etc.). Many physicians will evaluate the patient's personality as well, in order to assess his or her coping resources and emotional response patterns. There are a number of personality inventories and psychological tests that doctors can use to help diagnose the amount of stress that the patient experiences and the coping strategies that he or she uses to deal with them. Stress-related illness can be diagnosed by primary care doctors as well as by those who specialize in psychiatry. The doctor will need to distinguish between adjustment disorders and **anxiety** or mood disorders, and between psychiatric disorders and physical illnesses (e.g. thyroid activity) that have psychological side effects.

Treatment

Relaxation training, yoga , **t'ai chi**, and dance therapy help patients relieve physical and mental symptoms of stress. **Hydrotherapy**, massage therapy, and **aromatherapy** are useful to some anxious patients because they can promote general relaxation of the nervous system. **Essential oils** of **lavender**, **chamomile**, neroli, sweet marjoram, and ylang-ylang are commonly recommended by aromatherapists for stress relief.

Meditation can also be a useful tool for controlling stress. **Guided imagery**, in which an individual is taught to visualize a pleasing and calming mental image in order to counteract feelings of stress, is also helpful. Many individuals may find activities such as

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

exercise, art, music, and writing useful in reducing stress and promoting relaxation.

Sometimes the best therapy for alleviating stress is a family member or friend who will listen. Talking about stressful situations and events can help an individual work through his or her problems and consequently reduce the level of stress related to them. Having a social support network to turn to in times of trouble is critical to everyone's mental and physical well-being. **Pet therapy** has also been reported to relieve stress.

Herbs known as adaptogens may also be prescribed by herbalists or holistic healthcare providers to alleviate stress. These herbs are thought to promote adaptability to stress, and include **Siberian ginseng** (*Eleutherococcus senticosus*), ginseng (*Panax ginseng*), wild yam (*Dioscorea villosa*), borage (*Borago officinalis*), licorice (*Glycyrrhiza glabra*), chamomile (*Chamaemelum nobile*), milk thistle (*Silybum marianum*), and nettle (*Urtica dioica*).

Practitioners of Ayurvedic, or traditional Indian, medicine might prescribe root of winter cherry, fruit of emblic myrobalan, or the traditional formulas geriforte or mentat to reduce stress and fix the imbalance in the vata dosha.

It is also said that stress reduces the body's immunity, therefore vitamin supplementation can be helpful in counteracting the depletion. Diet is also important—coffee and other caffeinated beverages in high doses produce jitteriness, restlessness, anxiety, and insomnia. High protein animal foods elevate brain levels of dopamine and norepinephrine, which are associated with higher levels of anxiety and stress. Whole grains promote production of the brain neurotransmitter serotonin for a greater sense of well-being.

Allopathic treatment

Recent advances in the understanding of the many complex connections between the human mind and body have produced a variety of mainstream approaches to stress-related illness. Present treatment regimens may include one or more of the following:

- Medications. These may include drugs to control blood pressure or other physical symptoms of stress, as well as drugs that affect the patient's mood (tranquilizers or antidepressants).
- Stress management programs. These may be either individual or group treatments, and usually involve analysis of the stressors in the patient's life. They often focus on job- or workplace-related stress. A number of studies have found that good stress management programs significantly reduce absenteeism from work and visits to the doctor. They also improve immune system function and overall well-being in patients with such chronic disorders as HIV infection and diabetes.
- Behavioral approaches. These strategies include relaxation techniques, breathing exercises, and physical exercise programs including walking.
- Biofeedback. Biofeedback is a technique in which patients are taught to interpret and respond to signals from their own bodies. It can be taught by doctors, dentists, nurses, and physical therapists as well as by psychologists or psychiatrists. Biofeedback is often recommended as a treatment for chronic tension-type headaches.
- Massage. Therapeutic massage relieves stress by relaxing the large groups of muscles in the back, neck, arms, and legs. It is particularly helpful for people who tend to convert stress into muscle tension.
- Cognitive therapy. These approaches teach patients to reframe or mentally reinterpret the stressors in their lives in order to modify the body's physical reactions.

Expected results

The prognosis for recovery from a stress-related illness is related to a wide variety of factors in a person's life, many of which are genetically determined (race, sex, illnesses that run in families) or beyond the individual's control (economic trends, cultural stereotypes and prejudices). It is possible, however, for humans to learn new responses to stress and change their experiences of it. A person's ability to remain healthy in stressful situations is sometimes referred to as stress hardiness. Stress-hardy people have a cluster of personality traits that strengthen their ability to cope. These traits include believing in the importance of what they are doing; believing that they have some power to influence their situation; and viewing life's changes as positive opportunities rather than as threats.

Prevention

Complete prevention of stress is neither possible nor desirable because stress is an important stimulus of human growth and creativity, as well as an inevitable part of life. In addition, specific strategies for stress prevention vary widely from person to person, depending on the nature and number of the stressors in an individual's life, and the amount of control he or she has over these factors. In general, however, a combination of attitudinal and behavioral changes work well for most patients. The best form of

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

prevention appears to be parental modeling of healthy attitudes and behaviors within the family.

Resources

BOOKS

Clark, R. Barkley. "Psychosocial Aspects of Pediatrics and Psychiatric Disorders." *Current Pediatric Diagnosis &Treatment*. Edited by William W. Hay, Jr., et al. Stamford, CT: Appleton & Lange, 1997.

Eisendrath, Stuart J. "Psychiatric Disorders." *Current Medical Diagnosis & Treatment*. Edited by Lawrence M. Tierney, Jr., Stephen J. McPhee, and Maxine A. Papadakis. Stamford, CT: Appleton &Lange, 1997.

Pelletier, Kenneth R., MD. *The Best Alternative Medicine*, Part I, "Spirituality and Healing." New York: Simon & Schuster, 2002.

"Psychiatry in Medicine. " Section 15, Chapter 185 in *The Merck Manual of Diagnosis and Therapy*, edited by Mark H. Beers, MD, and Robert Berkow, MD. Whitehouse Station, NJ: Merck Research Laboratories, 1999.

Selye, Hans, MD. *The Stress of Life*. New York, Toronto, and London: McGraw-Hill Book Company, 1956.

PERIODICALS

Antoni, M. H., D. G. Cruess, N. Klimas, et al. "Stress Management and Immune System Reconstitution in Symptomatic HIV-Infected Gay Men Over Time: Effects on Transitional Naive T Cells (CD4(+)CD45RA(+)CD29(+))." *American Journal of Psychiatry* 159 (January 2002): 143-145.

Blumenthal, J. A., M. Babyak, J. Wei, et al. "Usefulness of Psychosocial Treatment of Mental Stress-Induced Myocardial Ischemia in Men." *American Journal of Cardiology* 89 (January 15, 2002): 164-168.

Cardenas, J., K. Williams, J. P. Wilson, et al. "PSTD, Major Depressive Symptoms, and Substance Abuse Following September 11, 2001, in a Midwestern University Population" *International Journal of Emergency Mental Health* 5 (Winter 2003): 15–28.

Gallo, L. C., and K. A. Matthews. "Understanding the Association Between Socioeconomic Status and Physical Health: Do Negative Emotions Play a Role?" *Psychological Bulletin* 129 (January 2003): 10–51.

Hawkley, L. C., and J. T. Cacioppo. "Loneliness and Pathways to Disease." *Brain, Behavior, and Immunity* 17 (February 2003) (Supplement 1): S98–S105.

Latkin, C. A., and A. D. Curry. "Stressful Neighborhoods and Depression: A Prospective Study of the Impact of Neighborhood Disorder." *Journal of Health and Social Behavior* 44 (March 2003): 34–44.

Ottenstein, R. J. "Coping with Threats of Terrorism: A Protocol for Group Intervention." *International Journal of Emergency Mental Health* 5 (Winter 2003): 39–42.

Rahe, R. H., C. B. Taylor, R. L. Tolles, et al. "A Novel Stress and Coping Workplace Program Reduces Illness and Healthcare Utilization." *Psychosomatic Medicine* 64 (March-April 2002): 278-286.

Solomon, G. D. "Chronic Tension-Type Headache: Advice for the Viselike-Headache Patient." *Cleveland Clinic Journal of Medicine* 69 (February 2002): 173-174.

Surwit, R. S., M. A. van Tilburg, N. Zucker, et al. "Stress Management Improves Long-Term Glycemic Control in Type 2 Diabetes." *Diabetes Care* 25 (January 2002): 30-34.

West, P., and H. Sweeting. "Fifteen, Female and Stressed: Changing Patterns of Psychological Distress Over Time." *Journal of Child Psychology and Psychiatry* 44 (March 2003): 399–411.

ORGANIZATIONS

The American Institute of Stress. 124 Park Avenue, Yonkers, NY 10703 (914) 963-1200. Fax: (914) 965-6267. http://www.stress.org.

National Institute of Mental Health (NIMH). 6001 Executive Boulevard, Room 8184, MSC 9663, Bethesda, MD 20892-9663. (301) 443-4513. www.nimh.nih.gov.

Stress and Anxiety Research Society (STAR). STAR is an international multidisciplinary organization of researchers that began in the Netherlands in 1980. http://www.star-society.org.

OTHER

National Center for Post-Traumatic Stress Disorder, Department of Veterans Affairs. *Fact Sheet: Survivors of Human-Caused and Natural Disasters*. http://www.ncptsd.org/facts/disasters/fs_survivors_disaster.html.

National Institute of Mental Health (NIMH) news release, July 17, 2003. "Gene More Than Doubles Risk of Depression Following Life Stresses." http://www.nimh.nih.gov/events/prgenestress.cfm.

Paula Ford-Martin
Rebecca J. Frey, PhD

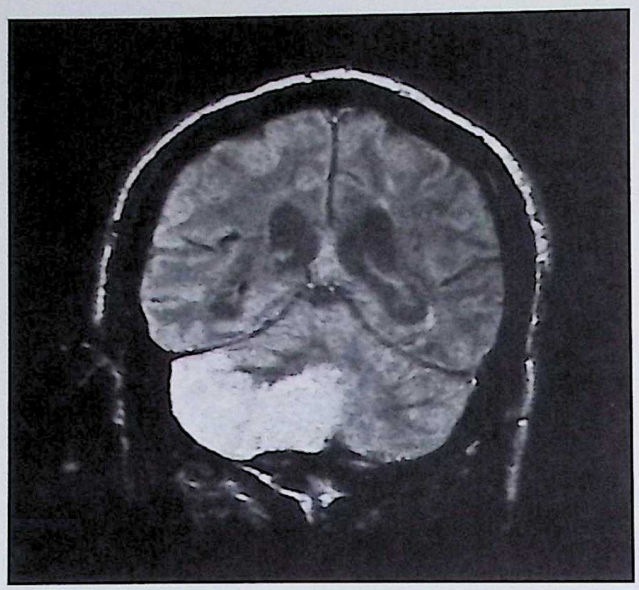
Stroke

Definition

Stroke is the common name for the injury to the brain that occurs when flow of blood to brain tissue is interrupted by a clogged or burst artery. Arterial blood carries oxygen and **nutrition** to the cells of the body. When arteries are unable to carry out this function due to rupture, constriction, or obstruction, the cells nourished by these arteries die. The medical term for stroke is the acronym CVA, or cerebral vascular accident. It is estimated that four of every five families in the United States will be affected by stroke in their lifetime, and it is the top cause of adult disability worldwide. Stroke is ranked third in the leading causes of death in the United States, has left three million Americans permanently disabled, and costs

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri



This frontal MRI view of the brain shows the appearance of an infarct (stroke) conforming to the vascular territory of the PICA (posterior inferior cerebellar artery). *(Living Art Enterprises, LLC / Photo Researchers, Inc.)*

the United States 30 billion dollars each year in terms of health care costs and lost productivity.

The most common type of stroke is classified as *ischemic*, or occurring because the blood supply to a portion of the brain has been cut off. Ischemic strokes account for approximately 80% of all strokes, and can be further broken down into two subtypes: thrombotic, also called cerebral thrombosis; and embolic, termed cerebral embolism.

Thrombotic strokes are by far the more prevalent, and can be seen in nearly all **aging** populations worldwide. As people grow older, **atherosclerosis**, or hardening of the arteries, occurs. This results in a buildup of a waxy, cholesterol-laden substance in the arteries, which eventually narrows the interior space, or lumen, of the artery. This arterial narrowing occurs in all parts of the body, including the brain. As the process continues, the occlusion, or shutting off of the artery, eventually becomes complete, so that no blood supply can pass through. Usually the presentation of the symptoms of a thrombotic stroke are much more gradual, and less dramatic, than other strokes due to the slow, ongoing process that produces it. Transient ischemic attacks, or TIAs, are one form of thrombotic stroke, and usually the least serious. TIAs represent the blockage of a very small artery or arteriole, or the intermittent or temporary obstruction of a larger artery. This blockage affects only a small portion of brain tissue and does not leave noticeable permanent ill effects. These transient ischemic attacks last only a matter of minutes, but are a forewarning that part of the brain is not receiving its necessary supply of blood, and thus oxygen and nutrition. Thrombotic strokes account for 40-50% of all strokes.

Embolic strokes are more acute and rapid in onset. They take place when the heart's rhythm is changed for a number of different reasons, and blood clot formation occurs. This blood clot can move through the circulatory system until it blocks a blood vessel and stops the blood supply to cells in a specific portion of the body. If it occludes an artery that nourishes heart muscle, it causes myocardial infarction, or heart attack. If it blocks off a vessel that feeds brain tissue, it is termed an embolic stroke. Embolisms account for 25-30% percent of all strokes. Normally these blockages occur in the brain itself, when arteries directly feeding portions of brain tissue are blocked by a clot. But occasionally the obstruction is found in the arteries of the neck, especially the carotid artery.

Approximately 20% of cerebral vascular accidents are termed hemorrhagic strokes. Hemorrhagic strokes occur when an artery to the brain has a weakness, and balloons outward, producing what is called an aneurysm. Such aneurysms often rupture due to this inflation and thinning of the arterial wall, causing a hemorrhage in the affected portion of the brain.

Both ischemic and hemorrhagic strokes display similar symptoms, depending on which portion of the brain is cut off from its supply of oxygen and nourishment. The brain is divided into left and right hemispheres. These hemispheres are responsible for bodily movement on the opposite side of the body from the brain hemisphere. For example, the left hemisphere of the brain is responsible for both motor control and sensory discrimination for the right side of the body, just as the right hemisphere is responsible for left body movements and feeling. Deeper brain tissue in the left hemisphere of the brain directs muscle tone and coordination for both the right arm and leg. As the communication and speech centers for the brain are also located in the left hemisphere of the brain, interruption of blood supply to that area can also typically affect the person's ability to speak.

Description

Strokes are always considered a medical emergency, and every minute is important in initiating treatment. With the possible exception of transient ischemic attacks, all other types of stroke are life-threatening events. Stroke is a leading cause of death in all nations of the Western world and the more

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Angiography—The procedure that enables blood vessels to be seen on film after the vessels have been filled with a contrast medium (a substance that shows up opaque on x rays).

Arteriole—The tiny extensions of arteries that lead into the capillaries.

Atherosclerosis—Disease of the arterial wall in which the inner layer thickens, causing narrowing of the channel and thus impairing blood flow.

CT (computer tomography) scan—The diagnostic technique in which the combined use of a computer and x rays passed through the body at different angles produces clear, cross-sectional images *(slices)* of the tissue being examined.

Encephalitis—Inflammation of the brain, usually caused by a viral infection.

Ischemic—Insufficient blood supply to a specific organ or tissue.

Lumbar puncture—A procedure in which a hollow needle is inserted into the lower part of the spinal canal to withdraw cerebrospinal fluid (the clear liquid which surrounds the brain and spinal cord), or to inject drugs or other substances.

Meningitis—Inflammation of the meninges (membranes which cover the brain and spinal cord).

MRI (magnetic resonance imaging)—The diagnostic technique which provides high quality cross-sectional images of organs or structures within the body through the use of a high-speed magnetic imaging device.

Myocardial infarction—Heart attack. Sudden death of part of the heart muscle characterized in most cases by severe, unremitting chest pain.

Subdural hematoma—Bleeding into the space between the outermost and middle membranes covering the brain.

Thrombotic—Pertaining to a blood clot formed within an intact blood vessel as opposed to a clot formed to seal the wall of a blood vessel after an injury.

TIA (transient ischemic attack)—Occlusion of smaller blood vessels to the brain which can produce stroke-like symptoms for anywhere from a few minutes to 24 hours, but leaves no permanent damage.

affluent Asian countries. One-quarter of all strokes are fatal. Cerebral vascular accidents are typically a condition of the elderly, and more often happen to men than women. In the United States, strokes occur in roughly one of every 500 people, and the likelihood of becoming a stroke victim rises sharply as a person ages. The incidence of strokes among people ages 30-60 years is less than 1%. This figure triples by the age of 80 years.

Causes and symptoms

Along with the typical risk factors for heart disease, the most common risk factor for thrombotic stroke is age. Some buildup of material along the inner lumen of the artery, or atherosclerosis, is a normal part of growing older. Hypertension, or high blood pressure, can result from this buildup, as the heart attempts to pump blood through these narrowed arteries. High blood pressure is one of the foremost causes of stroke. Aside from aging and **hypertension**, heart disease, **obesity**, diabetes, smoking, oral contraceptives in women, polycythemia, and a condition called **sleep apnea** are all risk factors for stroke, as is a diet high in **cholesterol** or fatty foods.

The risk factors for hemorrhagic stroke are those that can weaken arteries supplying blood to the brain. They include high blood pressure which can, over a period of time, cause the ballooning of arteries known as aneurysm, and hereditary malformations that produce defective and weakened veins and arteries. **Substance abuse** also is a major cause. It has been demonstrated for years that cocaine and stimulants such as amphetamine drugs are culprits, and chronic **alcoholism** can cause a weakening of blood vessels that also can result in hemorrhagic stroke.

Exactly what triggers the actual ischemic stroke event continues to puzzle clinicians. Researchers refer to these triggers as "short-term risk" vs. long-term risk factors. If researchers can help identify the triggers for stroke in those with high risk factors, they might be able to help prevent the stroke from occurring. One 2002 report found that abrupt changes in body position caused by sudden loud noises or other unexpected events might trigger a stroke. These events occurred during a two-hour period before the stroke.

Diagnosis

As noted previously, the symptoms of stroke observed depend upon the part of the brain, and how

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

large a portion of brain tissue has been damaged by the CVA. Unconsciousness and even seizures can be initial components of a stroke. Other effects materialize over a time period ranging from minutes to hours, and even, in some rare instances, over several days. Headache (often described as "the worst **headache** I've ever had" in hemorrhagic stroke), mental confusion, vertigo, vision problems, aphasia, or difficulty speaking and communicating, including slurring of words; are major symptoms. Hemiplegia, or weakness or paralysis of one side of the body, is a symptom that is frequently seen. This one-sided weakness is often first noticed in the person's face. Stroke victims often have facial drooping, or slackness of the facial muscles, on the affected side, as well as difficulty swallowing. The severity of these symptoms will depend upon the amount of brain tissue that has died, and its location in the brain.

Computed tomography (CT) brain scans, angiography, lumbar puncture, and magnetic resonance imaging (MRI) are all used to rule out any other possible causes of the symptoms seen. Other possible causes of these symptoms could be brain tumor, brain **abscess**, subdural hematoma, encephalitis, and **meningitis**.

Treatment

There are many applications of alternative and complementary medicine in the treatment and prevention of stroke. Alternative therapies are also used in rehabilitation of stroke victims. Acupuncture and **acupressure** are commonly used for stroke patients, as is massage. Movement and **meditation** programs such as **t'ai chi** are also helpful. Herbs with antioxidant properties may be prescribed by a practitioner. Many therapies aid in blood pressure control, including meditation, **guided imagery** , **biofeedback** and t'ai chi.

Allopathic treatment

Much of the needed care immediately following a stroke will be to prevent further damage than that which has already occurred. Paralysis requires prevention of contractures, or tightening up of paralyzed limbs. This is done through physiotherapy, and may include the use of supportive braces for arms or hands, footboards or wearing sneakers when in bed to prevent foot drop. The severely ill stroke patient will need to be repositioned frequently to prevent complications such as **pneumonia** and venous or pulmonary embolism.

Because of the difficulty swallowing, the person who has suffered a stroke may need a temporary or permanent feeding tube inserted into the stomach to ensure adequate nutrition. Such tubes can be placed through the nose, into the esophagus, and into the stomach, or gastrically, with a wider-lumen tube surgically implanted into the stomach.

A severe stroke that results in coma or unconsciousness will require medical monitoring and support, including oxygen and even possibly intubation to assure an adequate airway and facilitate breathing. Provision of fluids that the person may not be able to take by mouth due to swallowing difficulties will be necessary, as will possibly the administration of blood-thinning or clot-dissolving medications such as Coumadin or heparin. A five-year clinical trial completed in 1995 and reported by the *New England Journal of Medicine* showed that stroke patients treated with t-PA, a clot-dissolving medication, within three hours of the stroke were one-third more likely to be left with no permanent residual difficulty. The trauma of the brain caused by stroke may result in **edema**, or swelling, which may have to be reduced by giving the patient diuretic or steroid medications. Sometimes surgical removal of a clot obstructing an artery is necessary. Hemorrhagic stroke can cause a buildup of pressure on the brain that must be relieved as quickly as possible to prevent further brain damage. In extreme cases, this may require incision through the skull to relieve that pressure.

Expected results

Studies reported by the National Institute of Neurological Disorders and Stroke report that 25% of people who suffer a stroke recover completely and 20% die within three months after the stroke. Of the remaining 55% percent, 5% will require long-term (nursing home) care, and for the rest — roughly half of all stroke patients — rehabilitative and restorative services will be necessary to regain as much of their former capabilities as possible. It has been estimated that the most common irreversible damage from stroke is that done to intellectual functions.

Prevention

Control of blood pressure is the single most important factor in preventing stroke. People should have their blood pressure checked regularly, and if consistently elevated, (diastolic, or lower blood pressure beat above 90 to 100, systolic or top beat above 140 to 150), a physician should be consulted.

The American Heart Association recommends that cigarette smokers break the habit to reduce stroke risk. Current cigarette use can increase risk of cerebral infarction to nearly double and **smoking** is associated with other risk factors of stroke. Risk begins to increase as time since quitting smoking also increases.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

The AHA also recommends that those at risk for stroke avoid secondhand tobacco smoke if possible.

Diet, including reduction of **sodium** (salt) intake, **exercise** and weight loss, if overweight, are all non-drug treatments for lowering blood pressure. Other natural remedies include the use of **artichoke**, which lowers the fat content of the blood, **garlic**, now believed to lower cholesterol and blood pressure as well as to reduce the clotting ability of the blood, and ginkgo, which improves circulation and strengthens arteries and veins. The use of **folic acid**, **lecithin**, vitamins B_6 and B_{12}, vitamins C and E are all recommended as supportive measures in reducing blood pressure. Two new Harvard studies found that eating a diet high in fruits and vegetables (particularly leafy green vegetables and cruciferous ones like broccoli, cauliflower, and cabbage) can reduce the risk of ischemic stroke. When fruits and vegetables were not only added to the diet, but replaced meat and trans fats, they further reduced stroke risk.

Avoiding substances that can cause stroke. A 2002 report revealed that the popular herbal supplement ephedrine can cause stroke, **heart attack**, and sudden death.

Multiple studies have found that aspirin acts as a blood-thinning, or clot-reducing medication when taken in small doses. One baby aspirin tablet per day provides this anticoagulant prevention.

If necessary, a physician may also order medication to lower blood pressure. These medications include the following categories of drugs:

- *Beta blockers* reduce the force and speed of the heartbeat.
- *Vasodilators* dilate the blood vessels.
- *Diuretics* reduce the total volume of circulating blood and thus the heart's work by removing fluid from the body.
- *Lipid-lowering drugs* increase the loss of cholesterol from the body or prevent the conversion of fatty acids to cholesterol. This lowers fat levels in the blood stream.

A preliminary report out of France in 2002 stated that getting a flu shot might reduce risk of stroke. Previous research has also suggested that flu shots might stimulate a response in the immune system that helps reduce inflammation throughout the body. If true, those most likely to benefit would be the people age 75 and older.

Resources

BOOKS

Clayman, Charles B., MD. *The American Medical Association Home Medical Encyclopedia.* Random House, 1989.

Landis, Robyn, and Karta Purkh Singh Khalsa. *Herbal Defense: Positioning Yourself to Triumph Over Illness and Aging.* Warner Books, 1997.

Sammons, James H., MD, John T. Baker, MD, Frank D. Campion, Heidi Hough, James Ferris, Brenda A. Clark. *The American Medical Association Guide to Prescription and Over-the-counter Drugs.* Random House, 1988.

Thomas, Clayton L. *Taber's Cyclopedic Medical Dictionary.* F.A.Davis Co., 1998.

PERIODICALS

"Abrupt Changes in Body Position Can Trigger Stroke." *Heart Disease Weekly* (March 24, 2002):15.

"Flu Shots May Prevent Strokes." *Medical Update* (February 2002):5.

Hall, Zach W., Ph.D. *New England Journal of Medicine* (December 14, 1995).

Samenuk, David. "Adverse Cardiovascular Events Temporarily Associated with Ma Huang, an Herbal Source of Ephedrine." *JAMA, Journal of the American Medical Association* (March 27, 2002):1506.

"Strategies Identified to Prevent Primary Stroke." *Clinician Reviews* (March 2002):89.

"Vegetables and Fruits Cut Stroke Risk." *Health Science* (Winter 2002):7.

ORGANIZATIONS

National Institute of Neurological Disorders and Stroke. National Institutes of Health, Building 31, Room 8A-16, P.O. Box 5801, Bethesda, MD 20824. (301) 496-5751.

National Stroke Association. 1-800-STROKES. http://www.stroke.org.

OTHER

Dr. Rappa. "What Is a Stroke?" http://www.medhealthsolution.com.

Joan Schonbeck
Teresa G. Odle

Structural integration *see* **Rolfing**

Substance abuse and dependence

Definition

Substance abuse is the continued, compulsive use of mind-altering substances despite personal, social, and/or physical problems caused by the substance use.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Frequency of substance abuse by gender and age

Men	
Ages 18 to 29	17 to 24 percent
Ages 30 to 44	11 to 14 percent
Ages 45 to 64	6 to 8 percent
Over age 65	1 to 3 percent
Women	
Ages 18 to 29	4 to 10 percent
Ages 30 to 44	2 to 4 percent
Ages 45 to 64	1 to 2 percent
Over age 65	less than 1 percent

Acupuncture points associated with the relief of substance abuse problems. *(Illustration by Corey Light. Cengage Learning, Gale)*

Abuse may lead to dependence, where increased amounts are needed to achieve the desired effect or level of intoxication and the patient's tolerance for the drug increases.

Description

Substance abuse and dependence cuts across all lines of race, culture, education, and socioeconomic status, leaving no group untouched by its devastating effects. Substance abuse is an enormous public health problem, with far-ranging effects throughout society. In addition to the toll substance abuse can take on one's physical health, substance abuse is considered an important factor in a wide variety of social problems, affecting rates of crime, domestic violence, sexually transmitted diseases (including HIV/AIDS), unemployment, homelessness, teen **pregnancy**, and failure in school. One study estimated that 20% of the total yearly cost of health care in the United States is spent on the effects of drug and alcohol abuse.

A wide range of substances can be abused. The most common classes include:

- alcohol
- cocaine-based drugs
- opioids (including such prescription pain killers as morphine and Demerol, as well as illegal substances such as heroin)
- benzodiazapines (including prescription drugs used for treating anxiety, such as valium)
- sedatives or "downers" (including prescription barbiturate drugs commonly referred to as tranquilizers)
- stimulants or "speed" (including prescription amphetamine drugs used as weight loss drugs and in the treatment of attention deficit disorder) and Ecstasy (which in 2001 had been tried by more than 12 % of teens, up 71% over 1999 figures)
- cannabinoid drugs obtained from the hemp plant (including marijuana and hashish)
- hallucinogenic or "psychedelic" drugs (including LSD, PCP or angel dust, and other PCP-type drugs)
- inhalants (including gaseous drugs used in the medical practice of anesthesia, as well as such common substances as paint thinner, gasoline, and glue). A 2002 study found that inhalant use was even higher than that of Ecstasy

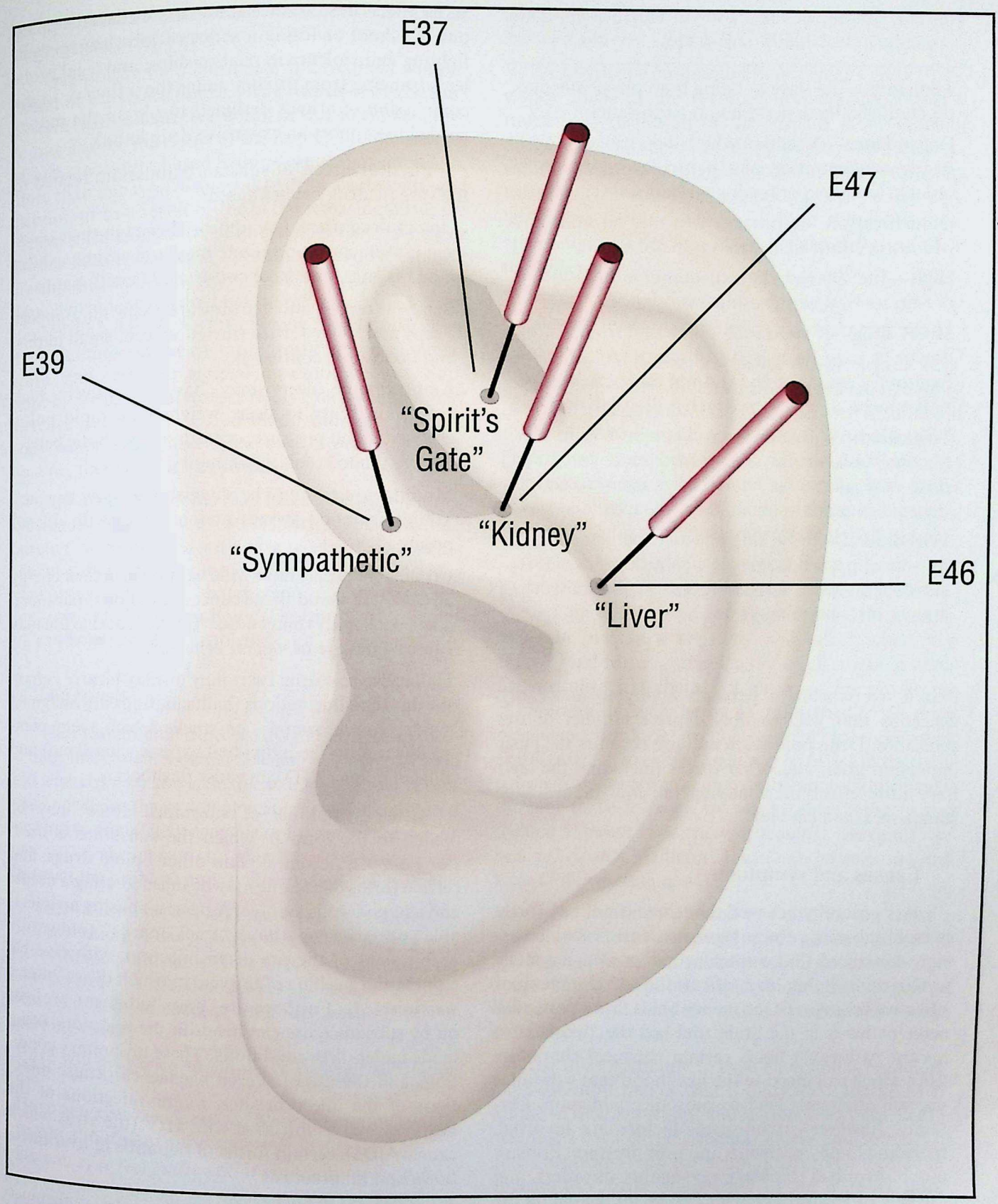
Over time, the same dosage of an abused substance will produce fewer of the desired feelings. This is known as drug tolerance. In order to continue to feel the desired effect of the substance, progressively higher drug doses must be taken.

Substance dependence is a phenomenon whereby a person becomes physically addicted to a substance. A substance-dependent person must have a particular dose or concentration of the substance in his or her bloodstream at any given moment in order to avoid the unpleasant symptoms associated with withdrawal from that substance. The common substances of abuse tend to exert either a depressive (slowing) or a stimulating (speeding up) effect on such basic bodily functions as respiratory rate, heart rate, and blood pressure. When a drug is stopped abruptly, the person's body will respond by overreacting to the substance's absence. Functions slowed by the abused substance will be suddenly speeded up, while previously stimulated functions will be suddenly slowed. This results in very unpleasant effects, known as withdrawal symptoms.

Addiction refers to the mind-state of a person who reaches a point where he/she must have a specific substance, even though the social, physical, and/or legal consequences of substance use are clearly negative (e.g., loss of relationships, employment, housing). Craving refers to an intense hunger for a specific substance, to the point where this need essentially directs the individual's behavior. Craving is usually seen in both dependence and addiction and can be so strong

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri



Acupuncture points associated with the relief of substance abuse problems. *(Illustration by GGS Information Services, Inc. Cengage Learning, Gale)*

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Addiction—The state of being both physically and psychologically dependent on a substance.

Dependence—A state in which a person requires a steady concentration of a particular substance in order to avoid experiencing withdrawal symptoms.

Detoxification—A process whereby an addict is withdrawn from a substance.

High—The altered state of consciousness that a person seeks when abusing a substance.

Street drug—A substance purchased from a drug dealer. It may be a legal substance, sold illicitly (without a prescription, and not for medical use), or it may be a substance which is illegal to possess.

Tolerance—A phenomenon whereby a drug user becomes physically accustomed to a particular dose of a substance, and requires ever-increasing dosages in order to obtain the same effects.

Withdrawal—Those side effects experienced by a person who has become physically dependent on a substance, upon decreasing the substance's dosage, or discontinuing its use.

that it overwhelms a person's ability to make any decisions that will possibly deprive him/her of the substance. Drug possession and use becomes the most important goal, and other forces (including the law) have little effect on changing the individual's substance-seeking behavior.

Causes and symptoms

It is generally believed that there is not one single cause of substance abuse, though scientists are increasingly convinced that certain people possess a genetic predisposition that can affect the development of addictive behaviors. One theory holds that a particular nerve pathway in the brain (dubbed the "mesolimbic reward pathway") holds certain chemical characteristics which can increase the likelihood that substance use will ultimately lead to substance addiction. Certainly, however, other social factors are involved, including family problems and peer pressure. Primary mood disorders (bipolar), personality disorders, and the role of learned behavior can be influential on the likelihood that a person will become substance dependent.

The symptoms of substance abuse may be related to its social effects as well as its physical effects. The social effects of substance abuse may include dropping out of school or losing a series of jobs, engaging in fighting and violence in relationships, and legal problems (ranging from driving under the influence to the commission of crimes designed to obtain the money needed to support an expensive drug habit).

Physical effects of substance abuse are related to the specific drug being abused:

- Opioid drug users may appear slowed in their physical movements and speech, may lose weight, exhibit mood swings, and have constricted (small) pupils.
- Benzodiazapine and barbiturate users may appear sleepy and slowed, with slurred speech, small pupils, and occasional confusion.
- Amphetamine users may have excessively high energy, inability to sleep, weight loss, rapid pulse, elevated blood pressure, occasional psychotic behavior and dilated (enlarged) pupils.
- Marijuana users may be sluggish and slow to react, exhibiting mood swings and red eyes with dilated pupils.
- Cocaine users may have wide variations in their energy level, severe mood disturbances, psychosis, paranoia, and a constantly runny nose. "Crack" cocaine use may cause aggressive or violent behavior.
- Hallucinogenic drug users may display bizarre behavior due to hallucinations (hallucinations are imagined sights, voices, sounds, or smells which seem completely real to the individual experiencing them) and dilated pupils. LSD can cause flashbacks.

Other symptoms of substance abuse may be related to the form in which the substance is used. For example, heroin, certain other opioid drugs, and certain forms of cocaine may be injected using a needle and a hypodermic syringe. A person abusing an injectable substance may have "track marks" (outwardly visible signs of the site of an injection, with possible redness and swelling of the vein in which the substance was injected). Furthermore, poor judgment brought on by substance use can result in the injections being made under dirty conditions. These unsanitary conditions and the use of shared needles can cause **infections** of the injection sites, major infections of the heart, as well as infection with HIV (the virus which causes **AIDS**), certain forms of **hepatitis** (a liver infection), and **tuberculosis**.

Cocaine is often taken as a powdery substance that is "snorted" through the nose. This can result in frequent **nosebleeds**, sores in the nose, and even erosion (an eating away) of the nasal septum (the structure that separates the two nostrils). Other forms of

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

cocaine include smokable or injectable forms such as freebase and crack cocaine.

Overdosing on a substance is a frequent complication of substance abuse. Drug overdose can be purposeful (with suicide as a goal), or due to carelessness. It may also be the result of the unpredictable strength of substances purchased from street dealers, mixing of more than one type of substance or of a substance and alcohol, or as a result of the ever-increasing doses the person must take of those substances to which he or she has become tolerant. Substance overdose can be a life-threatening emergency, with the specific symptoms dependent on the type of substance used. Substances with depressive effects may dangerously slow the breathing and heart rate, drop the body temperature, and result in general unresponsiveness. Substances with stimulatory effects may dangerously increase the heart rate and blood pressure, increase body temperature, and cause bizarre behavior. With cocaine, there is a risk of **stroke**.

Still other symptoms may be caused by unknown substances mixed with street drugs in order to "stretch" a batch. A health care worker faced with a patient suffering extreme symptoms will have no idea what other substance that person may have unwittingly put into his or her body. Thorough drug screening can help with this problem.

Diagnosis

The most difficult aspect of diagnosis involves overcoming the patient's denial. Denial is a psychological trait whereby a person is unable to allow him- or herself to acknowledge the reality of a situation. This may lead a person to completely deny his or her substance use, or may cause the person to greatly underestimate the degree of the problem and its effects on his or her life.

One of the simplest and most common screening tools practitioners use to begin the process of diagnosing substance abuse is the CAGE questionnaire. CAGE refers to the first letters of each word that forms the basis of each of the four questions of the screening exam:

- Have you ever tried to *cut* down on your substance use?
- Have you ever been *annoyed* by people trying to talk to you about your substance use?
- Do you ever feel *guilty* about your substance use?
- Do you ever need an *eye opener* (use of the substance first thing in the morning) in order to start your day?

Other, longer lists of questions exist in order to try to determine the severity and effects of a person's substance abuse. Certainly, it is also relevant to determine whether anybody else in the user's family has ever suffered from substance or alcohol addiction.

A physical examination may reveal signs of substance abuse in the form of needle marks, tracks, trauma to the inside of the nostrils from snorting drugs, unusually large or small pupils. With the person's permission, substance use can also be detected by examining an individual's blood, urine, or hair in a laboratory. This drug testing is limited by sensitivity, specificity, and the time elapsed since the person last used the drug.

Treatment

Treatment has several goals, which include helping a person deal with the uncomfortable and possibly life-threatening symptoms associated with withdrawal from an addictive substance (called **detoxification**), helping an abuser deal with the social effects that substance abuse has had on his or her life, and efforts to prevent relapse (resumed use of the substance). Individual or group **psychotherapy** may be helpful.

Ridding the body of toxins is believed to be aided by **hydrotherapy** (bathing regularly in water containing baking soda, sea salt, or Epsom salts). Hydrotherapy can include a constitutional effect where the body's vital force is stimulated and all organ systems are revitalized. Herbalists or naturopathic physicians may prescribe such herbs as **milk thistle** (*Silybum marianum*), burdock (*Arctium lappa*, a blood cleanser), and **licorice** (*Glycyrrhiza glabra*) to assist in detoxification. **Anxiety** brought on by substance withdrawal is thought to be lessened by using other herbs, which include **valerian** (*Valeriana officinalis*), vervain (*Verbena officinalis*), **skullcap** (*Scutellaria baicalensis*), and kava (*Piper methysticum*).

Other treatments aimed at reducing the **stress** a person suffers while attempting substance withdrawal and throughout an individual's recovery process include **acupuncture**, **hypnotherapy**, **biofeedback**, **guided imagery**, and various meditative arts (including **yoga** and **t'ai chi**).

Use of acupuncture to treat addiction is becoming more common, and in 2002, a study was undertaken in Maine to treat substance abuse users who were dually diagnosed with chronic mental illness and substance abuse problems with ear acupuncture. The technique appears to cleanse organs and to aid in **relaxation**, which eases many of the stresses believed to lead these patients to maintain their reliance on the drugs. Another clinical trial in the same year, however, found that acupuncture was not effective alone for treating cocaine-dependent adults. However, the study did

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

conclude that acupuncture may be effective for these patients when used in combination with other treatments. New research also suggests that **qigong** therapy may be an effective alternative for patients with heroin addiction.

Allopathic treatment

Detoxification may take from several days to many weeks. Detoxification can be accomplished "cold turkey," by complete and immediate cessation of all substance use, or by slowly decreasing (tapering) the dose which a person is taking, to minimize the side effects of withdrawal. Some substances absolutely must be tapered, because "cold turkey" methods of detoxification are potentially life threatening. Alternatively, a variety of medications may be utilized to combat the unpleasant and threatening physical symptoms of withdrawal. A substance (such as methadone in the case of heroin addiction) may be substituted for the original substance of abuse, with gradual tapering of this substituted drug. In practice, many patients may be maintained on methadone and lead a reasonably normal life style. Because of the rebound effects of wildly fluctuating blood pressure, body temperature, heart and breathing rates, as well as the potential for bizarre behavior and hallucinations, a person undergoing withdrawal must be carefully monitored.

Expected results

After a person has successfully withdrawn from substance use, the even more difficult task of recovery begins. Recovery refers to the life-long efforts of a person to avoid returning to substance use. The craving can be so strong even years and years after initial withdrawal that a previously addicted person is virtually forever in danger of slipping back into substance use. Triggers for such a relapse include any number of life stresses (problems on the job or in the marriage, loss of a relationship, death of a loved one, financial stresses), in addition to seemingly mundane exposure to a place or an acquaintance associated with previous substance use. While some people remain in counseling indefinitely as a way of maintaining contact with a professional who can help monitor behavior, others find that various support groups or 12-step programs such as Alcoholics Anonymous (AA) and Narcotics Anonymous (NA) are most helpful in monitoring the recovery process and avoiding relapse.

Another important aspect of treatment for substance abuse concerns the inclusion of close family members in treatment. Because substance abuse has severe effects on the functioning of the family, and because research shows that family members can accidentally develop behaviors which inadvertently serve to support a person's substance habit, most good treatment will involve all family members.

Prevention

Prevention is best aimed at teenagers, who are at very high risk for substance experimentation. Education regarding the risks and consequences of substance use, as well as teaching methods of resisting peer pressure, are both important components of a prevention program. Furthermore, it is important to identify children at higher risk for substance abuse (including victims of physical or sexual abuse, children of parents who have a history of substance abuse, especially alcohol, and children with school failure and/or attention deficit disorder). These children will require a more intensive prevention program. A 2002 report demonstrated that prevention programs worked with high risk youth in reducing rates of alcohol, tobacco, and **marijuana** use.

Resources

BOOKS

American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*. Washington, DC: American Psychiatric Association, 1994.

O'Brien, C.P. "Drug Abuse and Dependence." In *Cecil Textbook of Medicine*, edited by J. Claude Bennett and Fred Plum. Philadelphia: W.B. Saunders, 1996.

PERIODICALS

Imperio, Winnie A. "Substance Abuse Prevention Works." *Clinical Psychiatry News* (March 2002):41.

"Inhalant Use More Popular than Ecstasy, OxyContin." *Alcoholism & Drug Abuse Weekly* (March 25, 2002):8.

Margolin, Arthur, et al. "Acupuncture for the Treatment of Cocaine Addiction: A Randomized Controlled Trial." *JAMA, The Journal of the American Medical Association* (January 2, 2002):55–59.

Monroe, Judy. "Recognizing Signs of Drug Abuse." *Current Health* (September 1996):16+.

O'Brien, Charles P. and A. Thomas McLellan. "Addiction Medicine." *Journal of the American Medical Association* (18 June 1997): 1840+.

"Qigong Therapy Evaluated for Detoxification." *The Brown University Digest of Addiction Theory and Application* (March 2002):S1.

Rivara, et al. "Alcohol and Illicit Drug Abuse and the Risk of Violent Death in the Home." *Journal of the American Medical Association* (20 August 1997): 569+.

Savage, Lorraine. "Grant to Study Acupuncture's Effectiveness on Patients Suffering from Substance Abuse." *Healthcare Review*. (March 19, 2002): 16.

"Survey Finds Rise in Ecstasy Use Among Teens." *Alcoholism & Drug Abuse Weekly*. (February 25, 2002): 3.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

ORGANIZATIONS

Al-Anon, Alanon Family Group, Inc. P.O. Box 862, Midtown Station, New York, NY 10018-0862. (800) 356-9996. http://www.recovery.org/aa.

Alcoholics Anonymous. World Service Organization. P.O. Box 459, New York, NY 10163. (212) 870-3400. http://www.aa.org.

National Alliance On Alcoholism and Drug Dependence, Inc. 12 West 21st St., New York, NY 10010. (212) 206-6770.

OTHER

National Clearinghouse for Alcohol and Drug Information. http://www.health.org.

Parent Resources and Information for Drug Education (PRIDE). 10 Park Place South, Suite 340, Atlanta, GA 30303. (800) 853-7867 or (404) 577-4500.

Paula Ford-Martin
Teresa G. Odle

Sugar diabetes *see* **Diabetes mellitus**

Sulfur

Description

Sulfur is a homeopathic remedy that is used to treat a variety of chronic or acute ailments. The element sulfur is present in all living tissues. Sulfur is often referred to as brimstone or flowers of sulfur.

Sulfur was used during biblical times as a remedy for skin disorders such as **acne** and **scabies**. Flowers of sulfur were burned to disinfect the rooms of persons with infectious disease. Sulfur was also taken with molasses as an internal cleanser, and was used to treat chronic **bronchitis**, **constipation**, and rheumatism. Now the element is used in the manufacture of dyes, gunpowder, insecticides, fungicides, sulfuric acid, and rubber (as a hardening agent).

General use

Sulfur is known as the king of homeopathic remedies because it has such a wide range of use. It works well with almost every other remedy and it acts on many different maladies and ailments. This polychrest has a deep, long–lasting effect on the body and is often used to bring out symptoms for further treatment. For this reason, sulfur is generally used to treat chronic ailments, although it is also used for acute conditions such as fevers and colds. Sulfur stimulates the body's natural healing powers, causing a general improvement of symptoms and sometimes causing new symptoms.

Homeopaths prescribe sulfur to treat skin ailments such as herpes, **rashes**, **psoriasis**, **eczema**, and acne. Other conditions helped by this remedy include arthritis, colds, coughs, flatulence, gastrointestinal disturbances, and headaches.

Physical symptoms include excessive thirst, swollen glands, profuse sweat, sensitivity to heat, burning pains, hot feet, **boils**, and acne. Symptoms generally appear on the left side of the body. Bodily discharges are hot, burning, and sour smelling. The patient is extremely intolerable of the cold and other weather conditions. Arthritis, coughing, and hoarseness of the throat are all caused by damp weather or a change in weather. Skin conditions are often caused by a change in weather.

These patients are very sensitive to food and the times they eat. If a meal is delayed they may become nauseous and weak. At 10 A.M. or 11 A.M. they get an empty feeling in their stomachs and feel an intense hunger. Patients generally suffer from **indigestion** and other gastrointestinal disorders. They crave alcohol, sweets, spicy foods, fatty foods, and stimulants, but dislike milk and meat. Bread, cold food or drinks, fats, milk, and sweets aggravate their systems.

Mentally, patients are irritable, critical, discontented, impatient, depressed, quarrelsome, restless, hurried, anxious, easily offended, fearful, timid, absent–minded, sad, and weepy. The patient is always tired and lacks endurance. If made to stand for long periods of time he may feel faint.

Symptoms are aggravated by bathing, cold air, motion, **itching**, **fasting**, heat, milk, or standing. They are worse from 10–11 A.M., after eating, or if the patient is in a stuffy room. Symptoms such as headaches may recur on a regular basis, i.e. every seven or ten days. Patients are worse after a long sleep and may not want to get up. Fresh air and warm drinks can help the patient.

Specific indications

The backache typical of sulfur is aching, sore, and stiff. The back feels weak, tired, and bruised. It is worse from standing or walking, after sitting for long periods, during **menstruation**, or at night.

Sulfur patients catch colds easily and often. They cannot become overheated, remain in a cold place, or overexert themselves without catching a cold. The sulfur cold is accompanied by smelly nasal discharge, congestion, **sneezing**, eye inflammations, and an itchy, dry nose that, when blown, may bleed.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

The sulfur **cough** is generally dry in the evening and loose in the morning. The chest is congested and the sides hurt from coughing. There is a feeling of dust in the throat. The discharge that is expectorated from the cough is of a greenish color. Patients may often awake from coughing. The cough is better when exposed to open air.

Diarrhea that occurs early in the morning around 5 A.M. is indicative of sulfur. The diarrhea is painless, slimy, watery, and foul smelling. It is accompanied by flatulence and is somewhat relieved by the **gas**.

Earaches are accompanied by aching and lacerating pains. The **earache** is worse in the left ear. There is a ringing or roaring noise in the ear. The ears are frequently plugged and itchy.

Eye inflammations often accompany a cold. The eyes are itchy, watery, burning, dry, and sensitive to light. The eyelids itch in the daytime only. The patient may wake up with his eyes glued shut. Washing them, however, aggravates the condition.

Headaches are confined to the forehead or top of the head. They are hot and burning with hammering pains. These congestive headaches are caused by damp weather and are accompanied by **nausea** and **vomiting**. They often occur on Sunday and recur periodically. They are aggravated by motion, cold drinks, eating, bending over, blowing the nose, coughing, rising in the morning, and sneezing. Sometimes stars, zigzags, or other shapes will appear before the eyes.

Indigestion is common in sulfur patients. The patient can digest almost nothing, but he can't go long without eating. He has a weak stomach and a slow digestion. Stomach pains are sensitive to touch and a heavy feeling is present in the stomach. The patient is hungry at 10 A.M. and may need to eat to avoid feeling faint or weak. She may get a **headache** if she doesn't eat at that time. Indigestion is accompanied by sour belches, gas that smells rotten, bloating, and burning pains. It is worse after eating or from drinking milk.

Insomnia is caused by frequent waking in the early morning hours (3–5 A.M.). For this reason, the patient has a tendency to sleep late. However, no matter how much sleep the patient has, he always wakes up feeling tired. Short catnaps taken throughout the day refresh the patient. Patients are often unable to sleep before midnight.

Skin conditions are itchy, intense, and worse at night or in warm beds. The skin is itchy and burning and chaps easily. Ailments include herpes, rashes, acne, eczema, psoriasis, and **dermatitis**.

KEY TERMS

Polychrest—A homeopathic remedy that is used in the treatment of many ailments.

Succussion—A process integral to the creation of a homeopathic remedy in which a homeopathic solution is repeatedly struck against a firm surface. This is performed to thoroughly mix the substance and magnify its healing properties.

The **sore throat** of a sulfur patient is accompanied by swollen tonsils, burning pains, and a hoarse voice upon waking. The throat is dry and raw and may feel dusty. The throat is worse from coughing and swallowing.

Preparations

The homeopathic remedy is created by adding pure sulfur powder to a water/alcohol mixture or by grinding it with milk sugar. The mixture is then diluted and succussed to create the final preparation.

Sulfur is available at health food and drug stores in various potencies in the form of tinctures, tablets, and pellets.

Precautions

If symptoms do not improve after the recommended time period, a homeopath or health care practitioner should be consulted.

The recommended dose should not be exceeded.

Side effects

Individual aggravations may occur.

Interactions

When taking any homeopathic remedy, use of **peppermint** products, coffee, or alcohol is discouraged. These products may cause the remedy to be ineffective.

Sulfur should not be taken immediately before **lycopodium**.

Resources

BOOKS

Feingold, Ellen. *The Complete Self–Care Guide to Homeopathy, Herbal Remedies & Nutritional Supplements.* Albany, N.Y.: Whitston Publishing Company, 2008.

Hayfield, Robyn. *Simple Homeopathy: An Easy–to–follow Guide to Using Homeopathic Remedies to Heal Common*

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Ailments, with Expert Safe Advice and 100 Colour Photographs. London: Southwater, 2008.

ORGANIZATIONS

The American Institute of Homeopathy. 801 N. Fairfax Street, Suite 306, Alexandria, VA 22314, (888) 445–9988, http://www.homeopathyusa.org/.

Jennifer Wurges
David Edward Newton, Ed.D.

Suma

Description

Suma is the common name for a tropical ground vine native to the Amazon rain forest of Central and South America. Its botanical name is *Pfaffia paniculata*, and it belongs to the Amaranthaceae family. Referred to by the people of the rain forest as *para todo*, which can be translated as "for all things," the herb has been used for 300 years in the Amazon for many different ailments.

Sometimes called Brazilian ginseng, suma has a reputation as an energy booster, aphrodisiac, and wound healer; it has also been used to treat a wide range of medical conditions such as diabetes, **cancer**, and various skin conditions. Despite suma's traditional use as a folk remedy, its medicinal properties are not widely recognized around the world. While suma is on the list of about 600 Brazilian medicinal plants published by Brazil's Department of Health in the early 1980s, the herb was not included as of 2008 in most of the well-known compilations of herbs outside South America. Only the dried root of the suma plant is used as a drug. According to tradition, the root is also used in cooking and has a mild flavor resembling vanilla.

Although it is marketed to the public as Brazilian ginseng, suma is actually not related to ginseng in any way. *Panax ginseng*, which is cultivated in several parts of the globe outside South America, is a popular herbal stimulant and adaptogen in the United States, Asia, and Europe. Like ginseng, suma is described as an adaptogen. This drug class was first defined in the mid-twentieth century by Russian scientist Nikolai Lazarev, who described Siberian ginseng's broad therapeutic effects. In simple terms, an adaptogen acts nonspecifically to optimize function and help the body to adapt to physical and mental **stress** (infection, hot or cold temperatures, physical exertion, and emotional distress). In order to meet the stricter definition of this concept, an adaptogen should lack side effects, be effective against a wide range of diseases or disorders, and restore the body to a healthy equilibrium regardless of the cause of the disruption.

While in the late 2000s it was not known exactly how suma produces its effects, researchers had identified some of the herb's chemical constituents. These include pfaffosides A, B, C, D, E, and F; sitosterol; stigmasterol; allantoin; and germanium. As of 2008, there had been only a handful of clinical studies on suma, most conducted on mice. One of these studies, conducted by researchers at the University of São Paulo, Brazil, reported in 2005 that suma was effective in treating **pain** and inflammation in mice. It was reported in the February 16, 2006, issue of the scientific journal *Life Sciences*. The safety, indications, and ideal dosage of the herb in humans had not been determined by scientific studies as of early 2008.

General use

While not approved by the United States Food and Drug Administration (FDA), suma has been reported to have a number of beneficial effects. There is, however, little scientific evidence to support these claims. Aside from its use as an energy booster, some people use the herb to treat **chronic fatigue syndrome**, ulcers, **anxiety**, menstrual problems, **impotence**, and menopausal symptoms. Olympic competitors from Russia have used suma in conjunction with other adaptogens to enhance athletic performance. The herb has also been used to strengthen the immune system and fight infection. Like *Panax ginseng*, suma is purported to be an aphrodisiac.

Some of the most intriguing research regarding suma is difficult to verify. At the center of this research is Milton Brazzach of the University of São Paulo in Brazil, who has reportedly treated several thousand patients with suma after he claimed his wife was cured of **breast cancer** using the herb. He has prescribed suma in dosages as high as 28 g daily, for periods of months and years, to treat diabetes and various cancers such as **leukemia** and Hodgkin's disease. While Brazzach has reported that he achieved good results with suma, the full details of his research have not been published in medical journals. Until these studies have been published and reviewed by other experts, the evidence of suma's effectiveness in the treatment of these diseases cannot be authenticated.

Not all practitioners of alternative medicine agree when it comes to the virtues and possible dangers of suma. In *The Way of Herbs*, Michael Tierra compares the herb to **Siberian ginseng** and **Korean ginseng** in terms of effectiveness. He reports that suma increased

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Adaptogen—A substance that acts in nonspecific ways to improve the body's level of functioning and its adaptations to stress.

Aphrodisiac—An agent that stimulates or enhances sexual function or arousal.

In vitro—A Latin phrase that literally means "in the glass." It refers to an entity or process developed in a laboratory or similar controlled nonliving environment.

Panax ginseng—A popular longevity herb cultivated in Asia, Russia, and the United States. Described by some herbalists as an adaptogen, it is purported to strengthen the immune system and have a number of other beneficial effects.

the sense of overall well-being in one elderly patient with cancer and had beneficial effects on a teenager with leukemia. Suma appears to have the most consistent effect in people who suffer from chronic **fatigue** syndrome or lack of energy, states Tierra. By contrast, prominent pharmacologist Varro Tyler emphasizes safety concerns in *Tyler's Honest Herbal*. Even without extensive scientific testing, many folk remedies are considered relatively safe due to the fact that they have been used without apparent harm for centuries or even millennia, according to Tyler. It is not certain, however, that suma falls into the category of time-proven natural remedies. The claims that suma has been used for centuries in the Amazon are mainly derived from marketing material as opposed to recognized herbal literature. Due to concerns regarding the safety and effectiveness of suma, Tyler does not recommend using the herb for any purpose.

Preparations

The optimum daily dosage of suma has not been established by the FDA. The typical dosage is 1,000 mg daily, taken in divided doses. Much higher dosages have also been recommended.

Precautions

Suma is not known to be harmful when taken in recommended dosages, though it is important to remember that the effects of taking the herb (in any amount) are unknown.

Due to lack of sufficient medical study, suma should be not be used, or used with caution in children, women who are pregnant or breast-feeding, and people with liver or kidney disease.

Side effects

When taken in recommended dosages, suma has not been associated as of 2008 with any significant adverse side effects.

Interactions

Suma is not known to interact adversely with any drugs or dietary supplements.

Resources

BOOKS

Taylor, Leslie. *The Healing Power of Rainforest Herbs: A Guide to Understanding and Using Herbal Medicinals.* Garden City Park, NY: Square One Publishers, 2005.

PERIODICALS

Matsuzaki, Patricia, et al. "Antineoplastic Effects of Butanolic Residue of *Pfaffia Paniculata*." *Cancer Letters* (July 8, 2006): 85–89.

Mendes, Fulvio Rieli, and Elisaldo A. Carlini. "Brazillian Plants as Possible Adaptogens: An Ethnopharmacological Survey of Books Edited in Brazil." *Journal of Ethnopharmacology* (February 12, 2007): 493–500.

Pinello, Katia Cristina, et al. "Effects of *Pfaffia Paniculata* (Brazilian Ginseng) Extract on Macrophage Activity." *Life Sciences* (February 16, 2006): 1287–1292.

ORGANIZATIONS

American Institute of Homeopathy, 801 N. Fairfax St., Suite 306, Alexandria, VA, 22314, (888) 445-9988, http://www.homeopathyusa.org.

National Center for Complementary and Alternative Medicine, PO Box 7923, Gaithersburg, MD, 20898, (888) 644-6226, http://www.nccam.nih.gov.

Greg Annussek
Ken R. Wells

Sunburn

Definition

A sunburn is an inflammation or blistering of the skin caused by overexposure to the sun.

Description

Sunburn is caused by excessive exposure to the ultraviolet (UV) rays of the sun. There are two types of ultraviolet rays, UVA and UVB. UVA rays penetrate the skin deeply and can cause melanoma in

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Woman with a sunburn. *(Michelle Del Guercio / Photo Researchers, Inc.)*

KEY TERMS

Gingko biloba—A shade tree native to China that has fan-shaped leaves and fleshy seeds. Gingko extract is being studied as a sunburn remedy and preventative.

Malignant melanoma—The most deadly of the three types of skin cancer.

Melanin—A biological pigment that gives color to skin, hair, and the iris of the eye.

Sunscreen—Products that block the damaging rays of the sun. Good sunscreens contain either para-aminobenzoic acid (PABA) or benzophenone, or both. Sunscreen protection factors range from 2-45.

Topical—A type of medication that is applied to the external surface of the skin.

susceptible people. UVB rays, which don't penetrate as deeply, cause sunburn and wrinkling. Most UVB rays are absorbed by sunscreens, but only about half the UVA rays are absorbed.

Skin cancer from sun overexposure is a serious health problem in the United States, affecting almost one million Americans each year. One person out of 87 will develop malignant melanoma, the most serious type of skin **cancer**, and 7,300 of them will die each year. The Environmental Protection Agency (EPA) reported in 2000 that the rate of malignant melanoma is rising faster in the United States than the rates of all other preventable cancers except **lung cancer**. One reason for this high rate is the popular belief that suntanned skin is healthy and attractive. Many people spend more time in the sun than is good for their skin trying to achieve a fashionable tan.

People with fair skin are most susceptible to sunburn, because their skin produces only small amounts of the protective black or dark brown pigment called melanin. However, people of any race can get sunburned if they do not protect their skin against overexposure. People trying to get a tan too quickly in strong sunlight are also more vulnerable to sunburn.

Repeated sun overexposure and burning can prematurely age the skin, causing yellowish, wrinkled skin. Overexposure, especially a serious burn in childhood, can increase the risk of skin cancer.

Causes and symptoms

The ultraviolet rays in sunlight destroy cells in the outer layer of the skin, damaging tiny blood vessels underneath. When the skin is burned, the blood vessels dilate and leak fluid. Cells stop making protein. Their DNA is damaged by the ultraviolet rays. Repeated DNA damage can lead to cancer.

When the sun **burns** the skin, it triggers immune defenses which identify the burned skin as foreign. At the same time, the sun transforms a substance on the skin which interferes with this immune response. While this substance keeps the immune system from attacking a person's own skin, it also means that any malignant cells in the skin will be able to grow freely.

Sunburn causes skin to turn red and blister. Several days later, the dead skin cells peel off. In severe cases, the burn may occur with sunstroke (**vomiting**, **fever**, and fainting).

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

While overexposure to the sun is harmful, even fatal, no exposure means the body can't manufacture **vitamin D**, which is the only vitamin whose biologically active form is a hormone. Vitamin D is produced in the skin from the energy of the sun's UV rays. People at risk for vitamin D deficiency include alcoholics, non-milk drinkers, and those who do not receive much sunlight, especially those who live in regions that get little natural light. Dr. Sheldon Saul Hendles says that as more people use sunscreens and decrease exposure to the sun, they should make sure to have adequate dietary and supplementary sources of vitamin D. Sunscreen prevents the synthesis of the vitamin.

Diagnosis

Symptoms of sunburn may not appear until several hours after exposure. A deep pink skin color accompanied by a sensation of heat and burning indicates a mild sunburn. A red color with visible strap lines, burning, **itching**, and stinging indicates a moderate burn. Bright red skin with **blisters**, fever, **chills**, and **nausea** indicates severe burn and medical help should be sought quickly.

Treatment

Over-the-counter preparations containing **aloe** (*Aloe barbadensis*) are an effective treatment for sunburn, easing **pain** and inflammation while also relieving dryness of the skin. A variety of topical herbal remedies applied as lotions, poultices, or compresses may also help relieve the effects of sunburn. **Calendula** (*Calendula officinalis*) is one of the most frequently recommended to reduce inflammation.

Other natural remedies include:

- Apply compresses dipped in cold water, one part skim milk mixed with four parts cold water, aluminum acetate antiseptic powder mixed with water, witch hazel, white vinegar, or baking soda mixed with water.
- Make a paste out of cornstarch and water, and apply directed to affected areas.
- Place thin, cold slices of raw cucumber, potato, or apple on the burned areas.
- Make a soothing solution by boiling lettuce in water, strain, cool the water for several hours in the refrigerator, then use cotton balls to pat the liquid onto the skin.
- Apply tea bags soaked in cold water to burned eyelids.
- Sooth the burn with cool yogurt, then rinse with a cold shower.

Another natural remedy that has been proposed for treating sunburn is gingko biloba extract. A Turkish study published in 2002 reported that gingko biloba appears to heal sunburned skin after exposure as well as protect against ultraviolet radiation before exposure. These findings, however, await confirmation by other researchers.

Allopathic treatment

Aspirin can ease pain and inflammation. Tender skin should be protected against the sun until it has healed.

In addition, people suffering from sunburn may apply:

- calamine lotion
- sunburn cream or spray
- cool tap water compresses
- colloidal oatmeal (Aveeno) baths
- dusting powder to reduce chafing

People who are severely sunburned should see a doctor, who may prescribe corticosteroid cream to speed healing, and prescription pain medication. Topical corticosteroids that have been shown to be safe as well as effective in treating sunburn include methylprednisolone aceponate and hydrocortisone 17-butyrate.

Expected results

Moderately burned skin should heal within a week. While the skin will heal after a sunburn, the risk of skin cancer increases with exposure and subsequent burns. Even one bad burn in childhood carries an increased risk of skin cancer.

Prevention

Sun protection education

Concern about the rising rate of melanoma in Europe, Australia, and the United States has led public health experts to recommend adding instruction about the importance of sun protection to elementary and junior high school programs. A 1999 cross-sectional study of boys and girls in all 50 states found that 83% of the students had at least one sunburn during the previous summer, with 36% reporting three or more episodes of sunburn. Only 34% used sunscreen. As of 1998, only 3.4% of schools in the United States had sun protection policies to protect students from excessive sun exposure during recess or athletic practice. A standardized program of sun protection education developed by the EPA in 2000 has been reported to be effective in

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

changing students' attitudes toward tanning and the importance of using sunscreen.

Specific preventive measures

To prevent sunburn, everyone over the age of six months should use a water-resistant sunscreen with a sun protective factor (SPF) of at least 15. Apply at least an ounce of sunscreen 15–30 minutes before going outside. It should be reapplied every two hours (more often after swimming). Babies should be kept completely out of the sun for the first six months of life, because their skin is thinner than older children. Sunscreens have not been approved for infants. Some people are allergic to para-aminobenzoic acid (PABA) a major ingredient in sunscreen products and should check all labels or consult a doctor prior to application.

In addition, people should follow these guidelines:

- Limit sun exposure to 15 minutes the first day, even if the weather is hazy; then slowly increase exposure daily.
- Reapply sunscreen every two hours (more often if swimming or perspiring heavily).
- Reapply waterproof sunscreen after swimming more than 80 minutes, after toweling off, or after perspiring heavily.
- Avoid the sun between 10 A.M. and 3 P.M.
- Use waterproof sunscreen on legs and feet, since sun rays can burn even through water.
- Wear an opaque shirt in water, because reflected rays are intensified.

Patients using a sunscreen rated lower than SPF 15 should note that simply applying more of the same SPF won't prolong allowed time in the sun. Instead, patients should use a higher SPF in order to safely lengthen their exposure time. A billed cap protects 70% of the face; a wide-brimmed hat is better. People at very high risk for skin cancer can wear clothing that blocks almost all UV rays, but most people can simply wear white cotton summer-weight clothing with a tight weave. In 2001, the U.S. Food and Drug Administration will require all sunscreen makers to label their products as providing minimum, moderate, or high sun protection.

Resources

BOOKS

Blumenthal, Mark. *The Complete German Commission E Monographs: Therapeutic Guide to Herbal Medicine.* Boston: Integrative Medicine Communications, 1999.

Orkin, Milton, Howard Maibach, and Mark Dahl. *Dermatology*. Norwalk, CT: Appleton & Lange, 1992.

PERIODICALS

Buller, D. B., A. C. Geller, M. Cantor, et al. "Sun Protection Policies and Environmental Features in US Elementary Schools." *Archives of Dermatology* 138 (June 2002): 771-774.

Duteil, L., C. Queille-Roussel, B. Lorenz et al. "A Randomized, Controlled Study of the Safety and Efficacy of Topical Corticosteroid Treatments of Sunburn in Healthy Volunteers." *Clinical and Experimental Dermatology* 27 (June 2002): 314-318.

Geller, A. C., M. Cantor, D. R. Miller, et al. "The Environmental Protection Agency's National SunWise School Program: Sun Protection Education in US Schools (1999-2000)." *Journal of the American Academy of Dermatology* 46 (May 2002): 683-689.

Geller, A. C., G. Colditz, S. Oliveria, et al. "Use of Sunscreen, Sunburning Rates, and Tanning Bed Use Among More Than 10 000 US Children and Adolescents." *Pediatrics* 109 (June 2002): 1009-1014.

Ozkur, M. K., M. S. Bozkurt, B. Balabanli, et al. "The Effects of EGb 761 on Lipid Peroxide Levels and Superoxide Dismutase Activity in Sunburn." *Photodermatology, Photoimmunology and Photomedicine* 18 (June 2002): 117-120.

Tyler, Varro. "Aloe: Nature's Skin Soother." *Prevention* 50 (April 1, 1998): 94-96.

ORGANIZATIONS

American Academy of Dermatology. 930 East Woodfield Rd., PO Box 4014, Schaumburg, IL 60168. (847) 330-0230. www.aad.org.

Environmental Protection Agency. Ten regional offices with region-specific addresses and phone numbers. www.epa.gov.

Ken R. Wells
Rebecca J. Frey, PhD

Sun's soup

Description

Sun's soup is a packaged food product made by Sun Farm Corporation (Milford, Connecticut), which contains vegetables and herbs. The soup's ingredients are said to possess anticancer and immune-building properties. Named for its creator, biochemist Alexander Sun, Ph.D., who began work on the soup formula during the 1980s, it is also known as Dr. Sun's soup. Two versions are available, freeze-dried and frozen. It may be ordered online and by phone.

According to a National **Cancer** Institute report, the original soup formula contained shiitake mushrooms (*Lentinus edodes*), mung bean (*Phaseolus aureus*), and

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

the Chinese herbs *Bai Hua She She Cao* (*Hedyotis diffusa*) and *Ban Zhi Lian* (*Scutellaria barbata*). The Institute report also included two other Sun Farm products, Selected Vegetables (SV) and Frozen Selected Vegetables (FSV), which are believed to contain:

- soybean (*Glycine max*
- shiitake mushroom
- mung bean
- red date (*Ziziphus zizyphus*)
- scallion (*Allium cepa*)
- garlic (*Allium tuberosum*)
- leek (*Allium porrum*)
- lentil (seed of the *Lens ensculenta* plant)
- hawthorn fruit (*Crataegus pinnatifida fructus*)
- onion (*Allium x proliferum*)
- ginseng (*Panax ginseng*)
- angelica root (*Dahurica*)
- licorice (*Glycyrrhiza glabra*)
- dandelion root (*Taraxacum officinale*)
- senega root (*Polygala senega*)
- ginger (*Zingiber officinale*)
- olive (*Bucida spinosa*)
- sesame seed (*Sesamum indicum*)
- parsley (*Petroselinum sativum* or *crispum*).

General use

When Alexander Sun's mother was diagnosed with non-small cell **lung cancer**, the Taiwanese biochemist began studying the research about treatments for her condition. According to an article on the Sun Farm Web site, Sun's mother underwent surgery to remove a tumor. During treatment that included chemotherapy, a new tumor was discovered. Sun then began researching **traditional Chinese medicine**, looking for herbal remedies that would help boost his mother's immune system and cause her tumor to shrink.

Based on his studies of Chinese medical textbooks, Sun developed an herb-and-vegeta ble soup, which his mother ate daily. According to the article, her condition was improved three months later, and doctors removed the remaining tumor. Sun's mother was reported to be cancer-free 13 years later, according to a citation in "Selected Vegetables/Sun's soup," a 13-page summary from the National Cancer Institute of the National Institutes of Health.

In 1992, Sun filed a patent application for his soup product, described as an "herbal treatment of malignancy." He received the patent three years later, and conducted clinical trials involving cancer patients who consumed the soup. Sun classified his product as a dietary supplement. In the United States, dietary supplements are categorized as foods rather than drugs. Companies planning to market new drugs must have their products evaluated by the United States Food and Drug Administration (FDA). The federal agency must approve the new drug before it is sold to the public as a medical treatment. No premarket evaluation and approval is required for dietary supplements. However, the FDA may remove a supplement from the market if the product is determined to be unsafe.

KEY TERMS

Non-small cell lung cancer—A group of lung cancers: squamous cell carcinoma, adenocarcinoma, and large cell carcinoma.

As of 2004, Sun's soup is marketed as a food. The National Cancer Institute report noted that the FDA had not approved any formulation of Sun's soup for the treatment of cancer or any other medical condition. Clinical trials have been conducted on the soup, and the Sun Farm Web site contains references to those studies.

The National Cancer Institute report provided more in-depth analysis of two studies. The Institute cited research findings that Dr. Sun published in 1999 and 2001. While Sun's research indicated "improved survival" of cancer patients who consumed the soup, the Institute pointed out that only 18 people participated in the trials. That small number was among the "major weaknesses" of the research, according to the report. The Institute noted that different soup formulas were used in the studies, making it difficult to compare results.

Some of the known ingredients in Sun's soup may be effective as anticancer agents. The National Cancer Institute report described the potential benefits and uses of some ingredients in the various formulas of the herbal vegetable soup:

- Shiitake mushrooms are known to contain anticancer substances including lentinan.
- Mung bean may have an anticancer effect.
- *Bai Hua She She Cao* is a Chinese herb used to boost the immune system. It may have an anticancer effect.
- *Ban Zhi Lian* (barbat skullcap) may have an anticancer effect.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

- Red date is the fruit of the jujube plant. It has been used to treat medical problems in some cultures.
- Hawthorn fruit is the fruit of the hawthorn tree or bush. It has been used to treat conditions such as heart and gastrointestinal disorders.
- Ginseng may have an anticancer effect.
- Angelica root is the root of the angelica herb. It is used to treat gastrointestinal conditions such as gas, appetite loss, and feelings of fullness.
- Senega root is the root of the Polygala senaga herb. It is used to treat respiratory difficulties and other conditions.

Preparations

The original Sun's soup was prepared by adding it to hot water or another soup. The package contents may also be served on a salad.

The Sun Farm Web site lists daily recommended dosages for the supplement. For the freeze-dried product, the dosage is two 0.7-oz (20-g) pouches. The frozen soup is sold in 10-oz (0.3 kg) containers. The recommended dosage is one container per day.

Precautions

A diet rich in vegetables may reduce the risk of cancer. However, as of 2004, the FDA has not approved Sun's soup formula as a cancer treatment, and the soup is marketed as a food product. On the Sun Farm Web site, the business has a disclaimer regarding any medical effect of its products. While the site contains information about clinical trials, Internet visitors are advised to check with their doctors regarding their medical condition.

The National Cancer Institute report concluded that there was little evidence that Sun's soup was effective as a cancer treatment. The Institute maintained that data was "limited" and "weak." The report called for larger, better-designed clinical studies to determine if the soup could be used to treat cancers, such as non-small cell lung cancer.

Sun's soup is said to be expensive, costing as much as hundreds of dollars per month, according to a 2001 report on the Cancer Guide Web site. The Sun Farm Web site in 2004 listed no prices for online ordering.

Side effects

According to the National Cancer Institute report, consumption of Sun's soup did not cause any adverse side effects. Some people reported feelings of fullness or bloating after consuming the soup.

Interactions

There are no published reports of drug interactions from consuming Sun's soup.

Resources

OTHER

American Cancer Society. [cited April 30, 2004]. http://www.cancer.org.

Dunn, Steve. "Sun Soup." October 7, 2001. *Cancer Guide* [cited April 30, 2004. http://wwww.cancerguide.org/sun_soup.html.

Dupach, Etieune, Jr. "Cure for Cancer in a Bowl of Soup?" March 6,2000. [cited April 30, 2004]. http://www.sunfarmcorp.com/title-miami.htm.

National Cancer Institute. (800) 4-CANCER. "Selected Vegetables/Sun's soup." July 24, 2003. [cited April 30, 2004]. http://www.nci.nhi.gov/cancerinfo/pdq/cam/vegetables-sun-soup.

Sun Farm Corporation. [cited April 30, 2004]. http://www.sunfarmcorp.com.

Liz Swain

Swedish massage

Definition

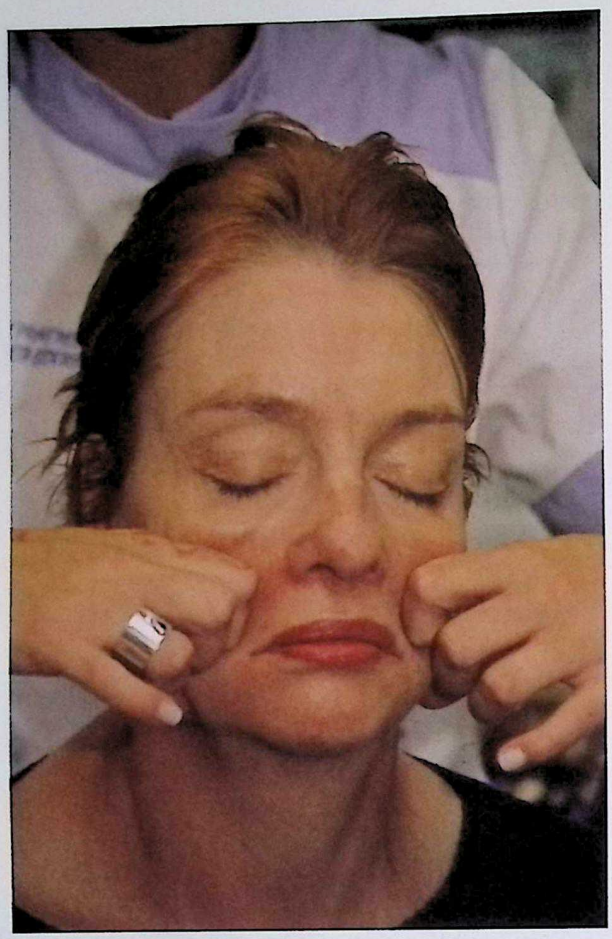
Swedish massage is the most popular type of massage in the United States. It involves the use of hands, forearms or elbows to manipulate the superficial layers of the muscles to improve mental and physical health. Active or passive movement of the joints may also be part of the massage. The benefits of Swedish massage include increased blood circulation, mental and physical **relaxation**, decreased **stress** and muscle tension, and improved range of motion.

Origins

Swedish massage was invented by a Swedish fencing instructor named Per Henrik Ling in the 1830s. When he was injured in the elbows, he reportedly cured himself using tapping (percussion) strokes around the affected area. He later developed the technique currently known as Swedish massage. This technique was brought to the United States from Sweden by two brothers, Dr. Charles and Dr. George Taylor in the 1850s. The specific techniques used in Swedish massage involve the application of long gliding strokes, friction, and kneading and tapping movements on the soft tissues of the body. Sometimes, passive or active joint movements are also used.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri



Swedish massage involves the use of hands, forearms or elbows to manipulate the superficial layers of the muscles to improve mental and physical health. *(Libby Welch / Alamy)*

KEY TERMS

Cupping—A type of percussion stroke in which the massage therapist strikes or thumps the muscles with cupped hands.

Effleurage—A massage technique that involves light stroking with the palms or thumbs.

Petrissage—A massage technique in which the therapist kneads or squeezes the muscles with both hands.

Tapotement—A group of massage techniques in which the therapist strikes the soft tissues with the sides of the hands or with loose fists. It is intended to invigorate and tone the body.

Benefits

Unlike drug therapy, which is often associated with many systemic and long-term side effects, **massage therapy** is relatively safe and has few contraindications. It also provides many benefits.

Physical benefits

There are numerous physical benefits associated with the use of Swedish massage:

- loosening tight muscles and stretching connective tissues
- relieving cramps and muscle spasms and decreasing muscle fatigue
- loosening joints and improving range of motion
- increasing muscle strength
- sedating the nervous system
- stimulating blood circulation
- firming up muscle and skin tone
- relieving symptoms of such disorders as asthma, arthritis, carpal tunnel syndrome, chronic and acute pain syndromes, myofacial pain, headache, temporomandibular joint (TMJ) dysfunction, and athletic injuries
- speeding up healing from injury and illness
- improving lymphatic drainage of metabolic wastes

Mental and emotional benefits

Mental benefits associated with massage therapy include the following:

- Mental relaxation
- Improvement in length and quality of sleep
- Relief of stress, depression, anxiety and irritation
- Increased ability to concentrate
- Improved sense of well-being

Description

In Swedish massage, the person to be massaged lies on a massage table and is draped with a towel or sheet. It is a full-body massage treatment, except in areas that are contraindicated or where the client requests not to be touched. Aromatic or unscented oil or lotion is used to facilitate the massage movements. Each session usually lasts 30-60 minutes. Depending on the client's preferences, a massage session may involve the use of several or all of the following basic techniques: effleurage, petrissage, friction, vibration, and tapotement.

Effleurage

Effleurage is the most common **stroke** in Swedish massage. It is a free-flowing and gliding movement towards the heart, tracing the contours of the body

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

using the palm of one or both hands. Oil is applied with this stroke to begin the first stage of massage. The therapist applies a light or medium constant pressure. This stroke is used to warm up the muscles, relax the body, calm the nerves, improve blood circulation and heart function, and improve lymphatic drainage.

Petrissage

This technique resembles kneading dough. It involves lifting, rolling, and squeezing the flesh under or between the hands. Petrissage is designed to release muscle tension, improve blood flow, and increase lymphatic drainage.

Friction

Friction strokes work on deeper muscles than the techniques previously described. The friction technique is a pressure stroke and is the deepest that is used in Swedish massage. The massage therapist applies pressure by placing the weight of his or her body on the flat of the hand and the pads of the thumbs, knuckles, fingers, or the back of the forearms, and then releases the pressure slowly and gently. This movement should be a continuous sliding motion or a group of alternating circular motions.

Vibration

To effect vibration, the massage therapist gently shakes or trembles the flesh with the hand or fingertips, then moves on to another spot and repeats this stroke. Vibration is designed to release muscle tension in small muscle areas, such as those on the face or along the spine.

Tapotement

Tapotement, or tapping and percussion, is a quick, choppy, rhythmic movement that has a stimulating or toning effect. The following are variations of tapotement:

- Cupping: The therapist forms the hands into a cup shape with fingers straight but bending only at the lower knuckles; the thumbs are kept close to the palms. The therapist strikes the flesh with the flat of the hands one after another in quick succession.
- Hacking: This technique is similar to cupping. The therapist uses the sides of the hands with palms facing one another to make a chopping movement.
- Pummeling: For this stroke, the therapist makes loose fists in both hands and applies them rapidly in succession over the thighs and buttocks.

Tapotement techniques are invigorating to most people but may be too strong for some. When prolonged, tapotement leads to overstimulation and even exhaustion of the nerves and muscles. In addition, it should not be used over **varicose veins** or directly above bony structures.

Preparations

Swedish massage requires the following equipment:

- Massage surface: This may be a professional massage table or any firm but well-padded surface.
- A clean sheet to cover the part of the body that is not massaged.
- Cushions: These may be needed, depending on the client's wishes, to prevent lower back pain. The cushions may be placed under the head and the knees.
- Oils: The base oil should be a vegetable oil, cold pressed, unrefined, and free of additives. These oils contain such nutrients as vitamins and minerals in addition to fatty acids. They do not clog the pores as mineral oils often do. Essential (aromatic) oils may be added to provide additional relaxation or other therapeutic effects. Massage oil should be warmed in the therapist's hands before it is applied to the client's skin.

Precautions

Swedish massage should not be given to patients with the following physical disorders or conditions:

- nausea, vomiting or diarrhea
- fever
- broken bones, fractures, dislocations, or severe sprains
- contagious diseases
- open or unhealed sores or wounds
- body areas that are inflamed, swollen or bruised
- varicose veins
- recent surgery
- severe pain
- jaundice
- frostbite
- kidney disease
- large hernias
- hemorrhaging
- torn ligaments, tendons, or muscles
- high blood pressure or heart problems
- certain kinds of cancer

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

- history of phlebitis or thrombosis (These patients may have blood clots that may become dislodged and travel to the lungs, with potentially fatal results.)
- drug treatment with blood thinners (These medications increase the risk of bleeding under the skin.)

Some clients with histories of physical violence or abuse may feel uncomfortable about removing their clothing or other aspects of massage. A brief explanation of what happens in a massage session and how they can benefit from massage is usually helpful.

Side effects

There have been few reported side effects associated with massage of low or moderate intensity. Intense massage, however, may increase the risk of injury to the body. Vigorous massage has been associated with muscle pain and such injuries as bleeding in the liver or other vital organs, and the dislodgment of **blood clots**.

Research and general acceptance

Swedish massage is now gaining acceptance from the medical community as a complementary treatment. Studies have shown that massage can relax the body, decrease blood pressure and heart rate, and reduce stress and depression. It may also provide symptomatic relief for many chronic diseases. Many doctors now prescribe massage therapy as symptomatic treatment for **headache**, facial pain, **carpal tunnel syndrome**, arthritis, other chronic and acute conditions, stress, and athletic injuries. Many insurance companies now reimburse patients for prescribed massage therapy. As of 2000, however, Medicare and Medicaid do not pay for this form of alternative treatment.

Training and certification

There are 58 school programs accredited by the Commission for Massage Therapy Accreditation/Approval in the United States. They provide a minimum 500 hours of massage training. Certified therapists have graduated from these programs and passed the national certification examination for therapeutic massage. They are also required to participate in continuing education programs to keep their skills current.

There are several national associations for massage therapists in the United States, including the American Massage Therapy Association and the National Association of Nurse Massage Therapists. Persons interested in massage therapy should contact these organizations for referral to local certified therapists.

Resources

BOOKS

Beck, Mark F. *Milady's Theory and Practice of Therapeutic Massage*, 3rd ed. Albany, NY: Milady Publishing, 1994.

Claire, Thomas. *Bodywork: What Type of Massage to Get and How to Make the Most of It*. New York: William Morrow and Company, Inc., 1995.

PERIODICALS

Trotter, James F. "Hepatic Hematoma after Deep Tissue Massage." *New England Journal of Medicine* 341 (1999): 2019-2020.

ORGANIZATIONS

American Massage Therapy Association. 820 Davis St., Suite 100. Evanston, IL 60201. (847) 864-0123. Fax: (847) 864-1178. http://wwww.amtamassage.org.

National Association of Nurse Massage Therapists. 1710 East Linden St. Tucson, AZ 85719.

National Certification Board of Therapeutic Massage and Bodywork. 8201 Greensboro Dr., Suite 300. McLean, VA 22102. (703) 610-9015. (800) 296-0664.

Mai Tran

Sweet clover

Definition

Sweet clover (*Melilotus officinalis*) is a biennial plant that grows to heights of 2-4 ft (0.6-1.2 m) and produces small yellow flowers emitting a fragrance resembling that of hay or vanilla. It is a member of the legume, or Leguminosae, family. During its first year of growth, most of its energy goes into developing

White sweet clover. *(© Arco Images / Alamy)*

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

its root system. In the second year it flowers between May and September, sets its seeds, and dies. Its seeds may remain viable for over 30 years. The plant is also called hart's tree, hay flower, king's clover, melilot, sweet lucerne, or wild laburnum. Sweet clover grows in North America, Europe, Australia, and the temperate regions of Asia. In the early 1900s, sweet clover was grown for forage and to build up the soil, since its roots help to keep nitrogen in the soil. Today it is used to support honey production. In some agricultural areas of the United States, however, sweet clover is now considered a nuisance because it spreads rapidly and can take over open fields or prairies.

General use

Sweet clover is valued for its medicinal uses because the flower contains coumarinic acids. Coumarin is the active ingredient in prescription anticoagulants (blood-thinning medications). Its presence in sweet clover allows it to reduce inflammation and swelling by increasing the flow of blood between the heart and the veins. As an herbal remedy, sweet clover is used in the treatment of **bruises**, **hemorrhoids**, and **varicose veins**. Its wound-healing properties have been confirmed in tests conducted on animals.

Taken internally as a tea or as a tisane, sweet clover relieves discomfort in the legs, particularly night cramps, **itching**, and swelling. The herb also supports the traditional medical treatments of vein inflammation, **blood clots**, and congestion of the lymph nodes. Applied externally as a poultice, sweet clover speeds the healing of bruises and eases the swelling of hemorrhoids.

Preparations

Commercial preparations of sweet clover are available as dried crushed herb, as ointments, and as suppositories.

To prepare a sweet clover infusion, boiling water is poured over 1-2 tsp of the crushed flowers and stems. The infusion is allowed to steep for 5-10 minutes, then strained into a cup. For the treatment of varicose veins, 2-3 cups per day is recommended.

To prepare as a poultice, the crushed herb is mixed with a small amount of boiling water, then spread on a soft cloth. The cloth is applied to the affected area until the cloth is cold. The poultice is applied as needed.

Precautions

The sale of herbal products is not regulated in the United States. They are sold as dietary supplements without proof of safety or a standard of quality control. In addition, the lack of comprehensive scientific research leaves the consumer without a standard to follow. Therefore, persons interested in using sweet clover or any other herbal remedy should always consult a physician or pharmacist before beginning a program of herbal therapy.

KEY TERMS

Coumarin—A chemical compound found in sweet clover that has blood-thinning properties.

Poultice—A warm mass of moist cloth or other soft material, used as a healing treatment. Poultices may contain crushed herbs or they may be moistened with herbal preparations.

Tisane—A decoction of herbs, usually drunk for medicinal purposes.

Side effects

Long-term ingestion of high doses of sweet clover can cause **headache** and stupor. In isolated cases, temporary liver damage can result. These side effects disappear when the treatment is halted.

Interactions

Although sweet clover does not have any identified interactions, prescription drugs containing coumarin have been known to interact adversely with other prescription drugs, especially blood thinners, aspirin, and heart medications. Persons taking prescription drugs of any type should check with their physicians before begining a regimen of sweet clover.

Coumarin can also cause birth defects and bleeding in the fetus. Therefore, the use of sweet clover should be avoided during **pregnancy**.

Resources

BOOKS

PDR for Herbal Medicines. Montvale, NJ: Medical Economics Company, 1998.

Mary McNulty

Swelling *see* **Edema**

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Swimmer's ear

Definition

Swimmer's ear, also known as otitis externa, is an inflammation of the outer ear canal. Although it is most prevalent among young adults and children, who often contract the condition from frequent swimming, swimmer's ear can affect anyone.

Description

Swimmer's ear is an inflammation of the outer ear that may lead to a painful and often itchy infection. It begins with the accumulation of excess moisture from swimming or daily showering. The skin inside the ear canal may flake due to moisture. This flaking may cause persistent **itching** that may lead to a break in the skin from scratching. Broken skin allows bacteria or a fungus to infect the tissues lining the ear canal. Swimming in polluted water can easily bring harmful bacteria into the outer ear.

Close-up of otitis externa, also called swimmer's ear. *(Pulse Picture Library/CMP Images/Phototake. Reproduced by permission.)*

Causes and symptoms

Causes

In swimmer's ear, the patient nearly always has a history of recent exposure to water combined with mild injury to the skin of the inner ear. This injury is typically caused by scratching or excessive and improper attempts to clean wax from the ears. Wax is one of the best defense mechanisms the ear has against infection due to the protection it offers from excess moisture and the environment it provides for friendly bacteria. Earwax should not be removed by such sharp objects as fingernails or hairpins. If the wax is scratched away, it becomes easier for an infection to occur.

The infection itself is usually caused by gram-negative bacilli (*Pseudomonas aeruginosa* or *Proteus*) or by fungi (*Aspergillus*) or even yeasts that thrive in moist environments. There are a surprisingly large number of different organisms that can cause otitis externa; one study of 2039 patients diagnosed with swimmer's ear found that 202 different species of bacteria, 32 species of yeast, and 17 species of mold could be identified as the infectious agents in this group of patients.

In recent years, some of the organisms most likely to cause otitis externa have developed resistance to antibiotics; the resistant organisms vary from country to country. One Asian study found that *Staphylococcus aureus* is responsible for more cases of swimmer's ear in East Asia than *Pseudomonas aeruginosa*, and that methicillin-resistant *S. aureus*, or MRSA, is an increasingly worrisome problem in these countries. A study done in Texas, however, found that *Staphylococcus epidermidis* was responsible for the largest number of antibiotic-resistant cases.

In a minority of cases, otitis externa is caused by an allergic reaction. The most common allergens in chronic otitis externa are topical medications used in the ear, particularly preparations containing neomycin; nickel and other metals used in inexpensive earrings; and some materials used to make hearing aids.

Symptoms

The symptoms of swimmer's ear include swelling, redness, heat, and **pain**. The inflammation may produce a foul-smelling, yellowish, or watery discharge from the ear. The skin inside the ear canal may swell to the point that the examiner cannot see the patient's eardrum.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Analgesic—A medication given to relieve pain.

Mullein—A plant related to the figwort, used by Native Americans to treat inflammations. It is still recommended by naturopaths to reduce the discomfort of swimmer's ear.

Otitis externa—Inflammation of the outer ear. Otitis externa is the medical term for swimmer's ear.

Otoscope—An instrument that allows doctors to examine the inside of a patient's ear.

Topical—A type of medication that is applied to the skin or other outer surface of the body.

The patient may also experience itching inside the ear and a temporary minor **hearing loss** due to the blockage of the ear canal. The severe pain and tenderness associated with the condition may intensify when the patient's head is moved, or if the examiner gently pulls the earlobe.

Diagnosis

The diagnosis of swimmer's ear is made from clinical observation. The doctor looks inside the ear with an instrument called an otoscope. The otoscope allows him or her to see whether there is swelling, redness, and a discharge. The doctor may also take a specimen of the discharge by swabbing just inside the ear. This specimen is then sent to a laboratory to identify the bacterium or fungus.

Treatment

Swimmer's ear is not usually a dangerous infection and often heals itself within a few days. If the infection is mild, alternative methods of treatment may be beneficial.

Herbal remedies

Native Americans used **mullein** (*Verbascum thapsus*) oil to treat minor inflammations. To ease the discomfort of swimmer's ear, 1–3 drops of a mullein preparation may be placed in the ear every three hours.

Garlic (*Allium sativum*) has been shown to be effective in treating swimmer's ear. As a natural antibiotic, garlic is a useful herb for inflammation of the outer ear. Equal parts of garlic juice and glycerin are added to a carrier oil, such as olive or sweet almond. One to three drops of this mixture may be placed in the infected ear every three hours.

Homeopathy

Specific homeopathic remedies for swimmer's ear may include *Aconite*, *Apis*, *Graphites*, or *Pulsatilla*. A homeopathic practitioner should always be consulted for specific treatment recommendations.

A 1997 German study found that homeopathic treatments reduced the duration of pain in children with ear **infections** more quickly than those treated with conventional drugs. The homeopathic-treated group was also found to have a greater resistance to recurrence of the infection within one year after treatment.

Home remedies

The inflammation and pain of otitis externa may be eased with the following home remedies:

- The infected ear canal may be washed with an over-the-counter topical antiseptic. A homemade solution using equal parts white vinegar and isopropyl alcohol may be placed, a few drops at a time, into the ear every two to three hours. The vinegar-alcohol drops should be kept in the ear for at least 30 seconds.
- A warm heating pad or compress may be placed on the ear to relieve pain.
- Pain may also be eased by taking aspirin or another analgesic.
- To assist the healing process, the infected ear canal should be kept dry. When showering, the patient should use earplugs or a shower cap.

Allopathic treatment

A doctor will use conventional medicine to treat swimmer's ear. The ear is typically cleaned with a cotton-tipped probe or a suction device to relieve irritation and pain. Ear drops containing a combination of hydrocortisone to help relieve the itching and an antibiotic to fight infection (usually neomycin sulfate and polymyxin B sulfate) may be prescribed.

For severe pain, doctors may recommend aspirin, acetaminophen, or some other over-the-counter pain medication. To assist the healing process, the infected ear must be kept dry. An infection typically begins to improve within three to four days. If the pain persists, or becomes worse, the doctor may prescribe an oral antibiotic or an anti-inflammatory drug.

If the doctor prescribes an oral antibiotic to treat the infection, it is important for the patient to finish taking the entire course of medication even if he or she feels better fairly quickly. The reason is that a single antibiotic can kill off most of the bacteria causing the infection, but a few organisms may survive that have a higher degree of natural resistance to the drug. If the

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

patient stops taking the antibiotic too soon, not all the bacteria will be killed off, and those that survive may develop resistance to the particular drug that was used.

If the otitis externa is caused by an allergic reaction, a patch test is necessary in order to identify the substance or object that is causing the reaction. Treatment consists of avoiding further contact with the allergen; or switching medications if the patient has developed an allergic sensitivity to a topical ear medication.

Expected results

Swimmer's ear is usually a minor inflammation of the outer ear canal that may even heal itself within a few days. It usually responds to many alternative treatments as well as to the conventional methods prescribed by doctors.

Rapidly spreading redness and swelling of the outer ear or nearby skin, or **fever**, are indications of an aggressively spreading infection. These symptoms require immediate medical attention.

Prevention

Prevention is the key component in avoiding swimmer's ear. Patients should be careful when cleaning the ears—never dig into the ear canal; wear earplugs when swimming and avoid swimming in dirty water; and use earplugs or a shower cap when showering.

Additional methods to ensure the prevention of swimmer's ear include: putting a dropperful of isopropyl alcohol or white vinegar into the ear after swimming or showering to dry out the ear and help kill germs; before swimming, create a protective coating by squirting a dropperful of mineral oil, baby oil, or lanolin into the ear; and when wearing a hearing aid, remove it often to allow the ear an opportunity to dry out completely.

Resources

BOOKS

Cummings, Stephen, MD, and Dana Ullman, MPH. *Everybody's Guide to Homeopathic Medicines.* New York: G. P. Putnam's Sons, 1991.

The Editors of Time-Life Books. *The Medical Advisor: The Complete Guide to Alternative & Conventional Treatments.* Richmond, VA: Time-Life Inc., 1996.

The Merck Manual of Diagnosis and Therapy, edited by Mark H. Beers, MD, and Robert Berkow, MD. Whitehouse Station, NJ: Merck Research Laboratories, 1999.

PERIODICALS

Berenholz, L., U. Katzenell, and M. Harell. "Evolving Resistant *Pseudomonas* to Ciprofloxacin in Malignant Otitis Externa." *Laryngoscope* 112 (September 2002): 1619-1622.

Hwang, J. H., C. K. Chu, and T. C. Liu. "Changes in Bacteriology of Discharging Ears." *Journal of Laryngology and Otology* 116 (September 2002): 686-689.

Ramsey, A. M. "Diagnosis and Treatment of the Child with a Draining Ear." *Journal of Pediatric Health Care* 16 (July-August 2002): 161-169.

Roland, P. S., and D. W. Stroman. "Microbiology of Acute Otitis Externa." *Laryngoscope* 112 (July 2002): 1166-1177.

Sood, S., D. R. Strachan, A. Tsikoudas, and G. I. Stables. "Allergic Otitis Externa." *Clinical Otolaryngology* 27 (August 2002): 233-236.

ORGANIZATIONS

American Academy of Otolaryngology-Head and Neck Surgery. 1 Prince Street. Alexandria, VA 22314. (703) 836-4444.

American Academy of Pediatrics (AAP). 141 Northwest Point Boulevard, Elk Grove Village, IL 60007. (847) 434-4000. www.aap.org.

International Foundation for Homeopathy. 2366 Eastlake Avenue East, Suite 329. Seattle, WA 98102. (206) 324-8230.

Beth Kapes
Rebecca J. Frey, PhD

Swollen testicles *see* **Epididymitis**

Syntonic optometry

Definition

Syntonic optometry uses colored light, shone into a patient's eyes, to treat visual and other dysfunction.

Origins

The founding father of syntonic optometry is Dr. Harry Riley Spitler, who developed the discipline during the 1920s and 1930s. Building on the work of earlier investigators including Edwin Babbit, Spitler studied the effects of light on human health and performance. Illness, he concluded, is largely caused by imbalances in the body's endocrine and nervous systems. Balance could be restored and healing achieved, he decided, by exposing the eyes to visible frequencies of light. Spitler founded the College of Syntonic Optometry in 1933, and eight years later he wrote a book titled *The Syntonic Principle*.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Benefits

Practitioners of syntonic optometry claim to be able to treat or support treatment of asthenopia (eye **fatigue**), strabismus (crossed eyes), amblyopia (unclear vision), ametropia (defective refraction of light), problems with focusing or converging the eyes, and visual field constrictions related to brain trauma, visual/emotional **stress**, or degenerative eye disorders. They also claim to be able to help correct visual attention deficit, and learning and behavior problems related to vision.

Description

In syntonic optometry, the patient is exposed to one or more colors of light for a fixed period of time. This is done in a darkened room, with colors generated by a machine known as a syntonizer. In a typical session, a patient might absorb one color for 10 minutes, then another for an additional 10 minutes. Alternatively, just one color might be absorbed for 20 minutes. Treatment typically could involve between three and five sessions a week, for a period of four to eight weeks. In most cases, syntonics is used in conjunction with other therapeutic procedures.

Precautions

The usefulness of syntonic optometry is a contentious issue, and a medical opinion should be sought in all cases of serious illness. The application of syntonic optometry to treating behavioral and **learning disorders** is especially controversial. Because the aftereffects of these problems can affect a child for a lifetime, it is prudent to obtain a second opinion from a university-affiliated practitioner.

Side effects

Conducted properly, syntonic optometry is thought to be generally free of adverse side effects, although it is expensive.

Research and general acceptance

American Academy of Ophthalmology, an association of medical eye specialists, states that "as with other forms of vision therapy, there is no scientifically verified evidence to support claims for syntonic optometry." The College of Syntonic Optometry acknowledges that "researchers and other professionals are still a step away from understanding the clinical methods and practice of light stimulation which syntonists have used with positive results for over a half a century." There is, however, growing acceptance in medical circles of the therapeutic effects of light, especially its usefulness in treating **seasonal affective disorder**.

Training and certification

The College of Syntonic Optometry, an international group based in the United States, offers training, research grants, and membership to registered optometrists. The college also offers associate memberships to licensed educators and health care practitioners who employ phototherapy techniques. Practitioners of syntonic optometry are most common in the United States, but can be found in numerous other countries.

Resources

ORGANIZATIONS

College of Syntomic Optometry. (717) 387-0900. http://www.syntonicphototherapy.com.

David Helwig

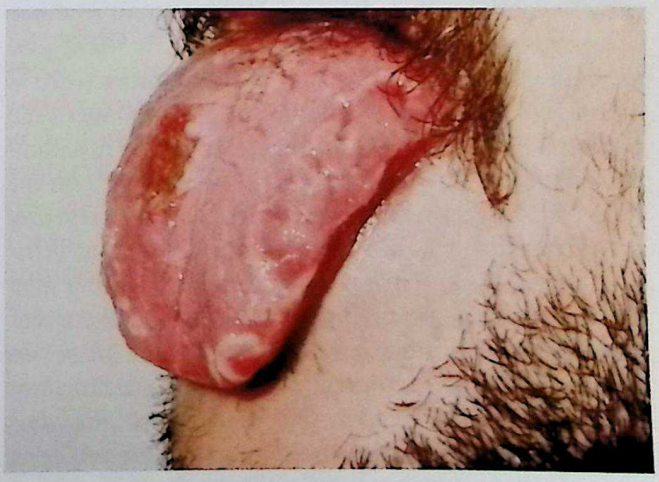
Syphilis

Definition

Syphilis is an infectious systemic disease that may be either congenital or acquired through sexual contact or contaminated needles.

Description

Syphilis has both acute and chronic forms that produce a wide variety of symptoms affecting most



Secondary syphilis. *(© Medical-on-Line / Alamy)*

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

of the body's organ systems. The range of symptoms makes it easy to confuse syphilis with less serious diseases and ignore its early signs. Acquired syphilis has four stages (primary, secondary, latent, and tertiary) and can be spread by sexual contact during the first three of these four stages.

Syphilis, which is also called lues (from a Latin word meaning plague), has been a major public health problem since the sixteenth century. The disease was treated with mercury or other ineffective remedies until World War I, when effective treatments based on arsenic or bismuth were introduced. These treatments were succeeded by antibiotics after World War II. At that time, the number of cases in the general population decreased dramatically, falling from nearly 25 cases per 100,000 among men and 17 cases per 100,000 among women to less about three cases per 100,000 for men and about two cases per 100,000 for women in 2000. This decrease resulted from both better treatments for the disease and an aggressive public education program about syphilis. After 2000, the rate of syphilis among men in the United States began to increase, reaching 5.7 cases per 100,000 in 2006, the last year for which data are available as of 2008. The rate for women remained low, at 1.0 case per 100,000 in 2006. A total of 36,935 cases of infectious syphilis and 349 cases of congenital syphilis were reported in the United States in 2006. Some authorities estimate the annual worldwide total of syphilis cases at about 50 million.

In 1999, the Centers for Disease Control and Prevention (CDC) joined several other federal agencies in announcing the National Plan to Eliminate Syphilis in the United States. Eliminating the disease was defined as the absence of transmission of the disease; that is, no transmission after 90 days following the report of an imported index case. The national goals for eliminating syphilis included bringing the annual number of reported cases in the United States below 1,000, and increasing the number of syphilis-free counties to 90% by 2005. In 2006 the CDC announced an update of the National Plan that focuses on three goals: (1) investing and enhancing public health services and interventions for syphilis treatment, (2) prioritizing and targeting interventions for high-risk populations, such as African Americans and men who have sex with other men (MSM), and (3) improving accountability of prevention efforts. To a large extent, the revised program was motivated by the striking increase in syphilis rates among MSM (an increase of 5% of all syphilis cases in 1999 to 64% of all cases in 2006) and among African American men (an increase of 22.6% in the one-year period from 2003 to 2004).

The increased incidence of syphilis since the 1970s is associated with drug abuse as well as changes in sexual behavior. The connections between drug abuse and syphilis include needle sharing and exchanging sex for drugs. In addition, people using drugs are more likely to engage in risky sexual practices. The risk of contracting syphilis as of 2008 was particularly high among those who abuse crack cocaine.

With respect to changing patterns of conduct, a sharp increase in the number of people having sex with multiple partners makes it more difficult for public health doctors to trace the contacts of infected persons. Women are not necessarily protected by having sex only with other women; in the past few years, several cases have been reported of female-to-female transmission of syphilis through oral-genital contact. In addition, the incidence of syphilis among men who have sex with other men continues to rise. Several studies in Latin America as well as in the United States reported in late 2002 that unprotected sexual intercourse is on the increase among gay and bisexual men.

Changing patterns of sexual behavior have led to a striking increase in the number of cases of syphilis in eastern Europe since the collapse of the Soviet Union; Slovenia reported an 18-fold increase in reported cases of syphilis just between 1993 and 1994. Over half of the new cases were linked to a source of infection in another European country.

In general, high-risk groups for syphilis in the United States and Canada include:

- sexually active teenagers
- people infected with another sexually transmitted disease (STD), including AIDS, herpes, and gonorrhea
- sexually abused children
- women of childbearing age
- prostitutes of either sex and their customers
- prisoners
- persons who abuse drugs or alcohol

The chances of contracting syphilis from an infected person in the early stages of the disease during unprotected sex range from 30 to 50%.

Causes and symptoms

Syphilis is caused by a spirochete, *Treponema pallidum*. A spirochete is a thin spiral- or coil-shaped bacterium that enters the body through the mucous membranes or breaks in the skin. In 90% of cases, the spirochete is transmitted by sexual contact. Transmission by blood transfusion is possible but rare, not only because blood products are screened for the disease,

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

but also because the spirochetes die within 24 hours in stored blood. Other methods of transmission are highly unlikely because *T. pallidum* is easily killed by heat and drying.

Primary syphilis

Primary syphilis is the stage of syphilis that begins when the organism enters the body. The first signs of infection are not always noticed. After an incubation period ranging from 10 to 90 days, the infected individual develops a chancre, which is a small blister-like sore about 0.5 in (10 mm) in size. Most chancres are on the genitals, but they may also develop in or on the mouth or on the breasts. Rectal chancres are common in MSM. Chancres in women are sometimes overlooked if they develop in the vagina or on the cervix. The chancres are not painful and disappear in three to six weeks even without treatment. They resemble the ulcers of lymphogranuloma venereum, herpes simplex virus, or skin tumors.

About 70% of individuals with primary syphilis also develop swollen lymph nodes near the chancre. The nodes may have a firm or rubbery feel when the doctor touches them but are not usually painful.

Secondary syphilis

Syphilis enters its secondary stage ranging from six to eight weeks to six months after the infection begins. Chancres may still be present but are usually healing or healed. Secondary syphilis is a systemic infection marked by the eruption of skin **rashes** and ulcers in the mucous membranes. The skin rash may mimic a number of other skin disorders such as drug reactions, **rubella** ringworm, **mononucleosis**, and **pityriasis rosea**. Characteristics that point to syphilis include:

- a coppery color
- absence of pain or itching
- occurrence on the palms of hands and soles of feet

The skin eruption may resolve in a few weeks or last as long as a year. The patient may also develop condylomata lata, which are weepy pinkish or gray areas of flattened skin in the moist areas of the body. The skin rashes, mouth and genital ulcers, and condylomata lata are all highly infectious.

About 50% of individuals with secondary syphilis develop swollen lymph nodes in the armpits, groin, and neck areas; about 10% develop inflammations of the eyes, kidney, liver, spleen, bones, joints, or the meninges (membranes covering the brain and spinal cord). Patients may also have a flu-like general illness with a low **fever**, **chills**, loss of appetite, headaches, runny nose, **sore throat**, and aching joints.

Latent syphilis

Latent syphilis is a phase of the disease characterized by relative absence of external symptoms. The term latent does not mean that the disease is not progressing or that individuals cannot infect others. For example, pregnant women can transmit syphilis to their unborn children during the latency period.

The latent phase is sometimes divided into early latency (less than two years after infection) and late latency. During early latency, patients are at risk for spontaneous relapses marked by recurrence of the ulcers and skin rashes of secondary syphilis. In late latency, these recurrences are much less likely. Late latency may either resolve spontaneously or continue for the rest of the individual's life.

Tertiary syphilis

Untreated syphilis progresses to a third or tertiary stage in about 35 to 40% of individuals who go untreated. These individuals cannot infect others with the disease. It is thought that the symptoms of this stage are a delayed immune hypersensitivity reaction to the spirochetes. Some individuals develop so-called benign late syphilis, which begins between three and 10 years after infection and is characterized by the development of gummas, that is, rubbery tumor-like growths that are most likely to involve the skin or long bones but may also develop in the eyes, mucous membranes, throat, liver, or stomach lining. Gummas are increasingly uncommon since the introduction of antibiotics for treating syphilis. Benign late syphilis is usually rapid in onset and responds well to treatment.

CARDIOVASCULAR SYPHILIS. Cardiovascular syphilis occurs in 10 to 15% of patients who have progressed to tertiary syphilis. It develops between 10 and 25 years after infection and often occurs together with neurosyphilis. Cardiovascular syphilis usually begins as an inflammation of the arteries leading from the heart and heart attacks, scarring of the aortic valves, congestive heart failure, or the formation of an aortic aneurysm.

NEUROSYPHILIS. About 8% of individuals with untreated syphilis develop symptoms in the central nervous system that include both physical and psychiatric symptoms. Neurosyphilis can appear at any time, from five to 35 years after the onset of primary syphilis. It affects men more frequently than women and Caucasians more frequently than African Americans.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Neurosyphilis is classified as four types:

- Asymptomatic. In this form of neurosyphilis, the individual's spinal fluid gives abnormal test results but there are no symptoms affecting the central nervous system.
- Meningovascular. This type of neurosyphilis is marked by changes in the blood vessels of the brain or inflammation of the meninges (the tissue layers covering the brain and spinal cord). The patient develops headaches, irritability, and visual problems. If the spinal cord is involved, the patient may experience weakness of the shoulder and upper arm muscles.
- Tabes dorsalis. This progressive degeneration of the spinal cord and nerve roots causes individuals to lose their sense of perception of body position and orientation in space (proprioception), resulting in difficulties walking and loss of muscle reflexes. They may also have shooting pains in the legs and periodic episodes of pain in the abdomen, throat, bladder, or rectum. Tabes dorsalis is sometimes called locomotor ataxia.
- General paresis. This condition concerns the effects of neurosyphilis on the cortex of the brain. The patient has a slow but progressive loss of memory, decreased ability to concentrate, and less interest in self-care. Personality changes may include irresponsible behavior, depression, delusions of grandeur, or complete psychosis. Sometimes called dementia paralytica, general paresis is most common in patients over 40.

Special populations

CONGENITAL SYPHILIS. The incidence of congenital syphilis dropped from a high of 17,600 cases in 1941 to a low of 239 in 1983, only to rebound to another high of 4,067 in 1992. It decreased dramatically then to a low point of 349 cases in 2006. The prognosis for early congenital syphilis is poor: about 54% of infected fetuses die before or shortly after birth. Those who survive may look normal at birth but show signs of infection between three and eight weeks later.

Infants with early congenital syphilis have systemic symptoms that resemble those of adults with secondary syphilis. There is a 40 to 60% chance that the child's central nervous system will be infected. These infants may have symptoms ranging from **jaundice**, enlargement of the spleen and liver, and **anemia** to skin rashes, condylomata lata, certain congenital bone abnormalities, inflammation of the lungs, a persistent runny nose, and swollen lymph nodes.

CHILDREN. Children who develop symptoms after the age of two years are said to have late congenital syphilis. The characteristic symptoms include facial deformities (saddle nose), Hutchinson's teeth (abnormal upper incisors), saber shins, dislocated joints, deafness, mental retardation, paralysis, and seizure disorders.

PREGNANT WOMEN. Syphilis can be transmitted from the mother to the fetus through the placenta at any time during **pregnancy** or through the child's contact with syphilitic ulcers during the birth process. The chances of infection are related to the stage of the mother's disease. Almost all infants of mothers with untreated primary or secondary syphilis are infected, whereas the infection rate drops to 40% if the mother is in the early latent stage and 6 to 14% if she has late latent syphilis.

Pregnancy does not affect the progression of syphilis in the mother; however, pregnant women should not be treated with tetracyclines.

HIV PATIENTS. Syphilis has been closely associated with HIV infection since the late 1980s. Syphilis sometimes mimics the symptoms of **AIDS**. Conversely, AIDS appears to increase the severity of syphilis in patients suffering from both diseases and to speed up the development or appearance of neurosyphilis. Patients with HIV are also more likely to develop lues maligna, a skin disease that sometimes occurs in secondary syphilis. Lues maligna is characterized by areas of ulcerated and dying tissue. In addition, HIV patients have a higher rate of treatment failure with penicillin than patients without HIV.

ADULT MALES. One study indicates that infection with syphilis increases a man's risk of developing **prostate cancer** in later life. It is thought that the infection may represent one mechanism among several through which prostate **cancer** may develop.

Diagnosis

Patient history and physical diagnosis

The diagnosis of syphilis is often delayed because of the variety of early symptoms, the varying length of the incubation period, and the possibility of not noticing the initial chancre. Patients do not always connect their symptoms with recent sexual contact. They may go to a dermatologist when they develop the skin rash of secondary syphilis rather than to their primary care doctor. Women may be diagnosed in the course of a gynecological checkup. Because of the long-term risks of untreated syphilis, certain groups of people are routinely screened for the disease:

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

- pregnant women
- sexual contacts or partners of patients diagnosed with syphilis
- children born to mothers with syphilis
- patients with HIV infection
- persons applying for marriage licenses

When doctors take the patient's history, they ask about recent sexual contacts in order to determine whether the patient falls into a high-risk group. Other symptoms, such as skin rashes or swollen lymph nodes, are noted with respect to the dates of the patient's sexual contacts. Definite diagnosis, however, depends on the results of laboratory blood tests.

Blood tests

There are several types of blood tests for syphilis used in the United States. Some are used in follow-up monitoring of patients as well as diagnosis.

NONTREPONEMAL ANTIGEN TESTS. Nontreponemal antigen tests are used as screeners. They measure the presence of reagin, which is an antibody formed in reaction to syphilis. In the Venereal Disease Research Laboratory (VDRL) test, a sample of the patient's blood is mixed with cardiolipin and **cholesterol**. If the mixture forms clumps or masses of matter, the test is considered reactive or positive. The serum sample can be diluted several times to determine the concentration of reagin in the patient's blood.

The rapid plasma reagin (RPR) test works on the same principle as the VDRL. It is available as a kit. The patient's serum is mixed with cardiolipin on a plastic-coated card that can be examined with the naked eye.

Nontreponemal antigen tests require a doctor's interpretation and sometimes further testing. They can yield both false-negative and false-positive results. False-positive results (test shows a positive result when the patient does not have the disease) can be caused by other infectious diseases, including mononucleosis, **malaria**, leprosy, **rheumatoid arthritis**, and lupus. HIV patients have a particularly high rate (4%, compared to 0.8% of HIV-negative patients) of false-positive results on reagin tests. False negative results (patient does have the disease, but test comes back negative) can occur when patients are tested too soon after exposure to syphilis; it takes about 14 to 21 days after infection for the blood to become reactive.

TREPONEMAL ANTIBODY TESTS. Treponemal antibody tests are used to rule out false-positive results on reagin tests. They measure the presence of antibodies that are specific for *T. pallidum*. The most commonly used tests are the microhemagglutination-*T. pallidum* (MHA-TP) and the fluorescent treponemal antibody absorption (FTA-ABS) tests. In the FTA-ABS, the patient's blood serum is mixed with a preparation that prevents interference from antibodies to other treponemal **infections**. The test serum is added to a slide containing *T. pallidum*. In a positive reaction, syphilitic antibodies in the blood coat the spirochetes on the slide. The slide is then stained with fluorescein, which causes the coated spirochetes to fluoresce when the slide is viewed under ultraviolet (UV) light. In the MHA-TP test, red blood cells from sheep are coated with *T. pallidum* antigen. The cells clump if the patient's blood contains antibodies for syphilis.

The treponemal antibody test developed in Belgium, the INNO-LIA, uses recombinant and peptide antigens derived from *T. pallidum* proteins. Studies suggest that the INNO-LIA is the most accurate as of 2008 of the available treponemal antibody tests for syphilis.

Treponemal antibody tests are more expensive and more difficult to perform than nontreponemal tests. They are, therefore, used to confirm the diagnosis of syphilis rather than to screen large groups of people. These tests are, however, highly specific and sensitive; false-positive results are relatively unusual.

INVESTIGATIONAL BLOOD TESTS. Three additional tests, ELISA, Western blot, and PCR, are also being used under some circumstances for syphilis testing, particularly for congenital syphilis and neurosyphilis.

Other laboratory tests

MICROSCOPE STUDIES. The diagnosis of syphilis can also be confirmed by identifying spirochetes in samples of tissue or lymphatic fluid. Fresh samples can be made into slides and studied under darkfield illumination. A newer method involves preparing slides from dried fluid smears and staining them with fluorescein for viewing under UV light. This method is replacing darkfield examination because the slides can be mailed to professional laboratories.

SPINAL FLUID TESTS. Testing of cerebrospinal fluid (CSF) is an important part of patient monitoring as well as a diagnostic test. The VDRL and FTA-ABS tests can be performed on CSF as well as on blood. An abnormally high white cell count and elevated protein levels in the CSF, together with positive VDRL results, suggest a possible diagnosis of neurosyphilis. CSF testing is not used for routine screening. It is used most frequently for infants with congenital syphilis, HIV-positive patients, and patients of any age who are not responding to penicillin treatment.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Treatment

It is difficult to obtain information about alternative treatments for syphilis. The disease has a high profile as a public health issue, and few alternative practitioners want to risk accusations of minimizing its dangers. Many naturopathic practitioners agree that antibiotics are essential for the treatment of syphilis. Others would add that recovery from the disease can be assisted by dietary changes, sleep, **exercise**, and **stress** reduction, and immune support measures.

Homeopathy

Homeopathic practitioners are forbidden by law in the United States to claim that homeopathic treatment can cure syphilis. Given the high rate of syphilis in HIV-positive patients, however, some alternative practitioners who are treating AIDS patients with homeopathic remedies maintain that they are beneficial for syphilis as well. The remedies suggested most frequently are *Medorrhinum*, *Syphilinum*, ***Mercurius vivus***, and *Aurum*. The use of *Mercurius vivus* as a homeopathic remedy reflects the past use of mercury to treat syphilis prior to the discovery of penicillin. *Syphilinum* represents a class of homeopathic remedies called nosodes. A nosode is a homeopathic medicine made from diseased material, such as bacteria, viruses, or pus. Its effect is based on the homeopathic law of similars, in which a substance that causes a specific set of symptoms in a healthy person is determined curative when given to a sick person with the same symptoms. *Syphilinum* is a nosode made from a dilution of killed *Treponema pallidum*. The historical link between **homeopathy** and syphilis is Hahnemann's theory of miasms, which he defined as fundamental predispositions toward disease that were transmitted from one generation to the next. He thought that the syphilitic miasm was the second oldest cause of constitutional weakness in humans.

Other

Traditional Chinese medicine (TCM) and other alternative methods emphasize the mental aspects of conditions and diseases such as syphilis. Mind-body medicine, **guided imagery**, and affirmations are often used to help support a person through such a disease. Some theories hold that humans can control physical as well as mental or spiritual events through the power of thinking itself. Some alternative therapies reflect these thought beliefs by maintaining that humans make themselves ill through harmful thought patterns and that they can heal themselves by affirming positive beliefs. One affirmation suggested for healing syphilis is: "I decide to be me." Most alternative practitioners would recommend this or similar thought affirmations only as adjuncts to conventional medical treatment for syphilis.

Certain supposedly outdated or discredited treatments for syphilis have resurfaced as alternative treatments for AIDS or cancer. One study of alternative treatments for HIV infection notes that **hyperthermia**, which involves treating a disease by giving the patient a fever, originated as a treatment for syphilis. Syphilis patients were given malaria in the belief that the resultant fever would kill the spirochetes that cause syphilis.

Another example is the so-called Hoxsey treatment for cancer, which was started in the 1920s by the Illinois practitioner, Harry Hoxsey. The treatment is no longer legally available in the United States but is offered through a clinic in Tijuana, Mexico. The treatment consists of several chemical mixtures applied externally and a formula of nine herbs taken internally. The Hoxsey herbal formula is almost identical to a remedy that was listed in the 1926 and 1936 editions of the *United States National Formulary* called compound fluidextract of trifolium. It was recommended as a treatment for secondary and tertiary syphilis. One of the external Hoxsey compounds contains both arsenic and antimony, which were used to treat syphilis before the use of antibiotics. The internal formula includes *Phytolacca americana*, or pokeweed, which was used by Native Americans to treat syphilitic chancres; and *Stillingia sylvatica*, or queensroot, which has also been used to treat syphilis. As of 2008, there was no demonstrated data to support the therapy's effectiveness for syphilis.

It should be noted that many alternative medicine therapies that claim to help such infectious diseases as syphilis have little data supporting their effectiveness.

Allopathic treatment

Medications

Syphilis is treated with antibiotics given either intramuscularly (benzathine penicillin G or ceftriaxone) or orally (doxycycline, minocycline, tetracycline, or azithromycin). Neurosyphilis is treated with a combination of aqueous crystalline penicillin G, benzathine penicillin G, or doxycycline. It is important to keep the levels of penicillin in the patient's tissues at sufficiently high levels over a period of days or weeks because the spirochetes have a relatively long reproduction time. Penicillin is more effective in treating the early stages of syphilis than the later stages.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Some researchers have recommended alternative antibiotics for the treatment of syphilis. They suggest that azithromycin and ceftriaxone are candidates for supplemental use with penicillin. Evidence suggests that ceftriaxone may be useful, although as of 2008, the proper dosage had not been determined. Studies with azithromycin indicate that the drug has been less effective than expected. Overall, the primary treatment of syphilis in primary and secondary stages remains penicillin, which is rapidly effective in a single dose in the vast majority of cases.

Doctors do not usually prescribe separate medications for the skin rashes or ulcers of secondary syphilis. The patient is advised to keep them clean and dry and to avoid exposing others to fluid or discharges from condylomata lata.

Pregnant women should be treated as early in pregnancy as possible. Infected fetuses can be cured if the mother is treated during the second and third trimesters of pregnancy. Infants with proven or suspected congenital syphilis are treated with either aqueous crystalline penicillin G or aqueous procaine penicillin G. Children who acquire syphilis after birth are treated with benzathine penicillin G.

Jarisch-Herxheimer reaction

The Jarisch-Herxheimer reaction, first described in 1895, is a reaction to penicillin treatment that may occur during the late primary, secondary, or early latent stages. The patient develops chills, fever, **headache**, and muscle pains within two to six hours after the penicillin is injected. The chancre or rash gets temporarily worse. The Jarisch-Herxheimer reaction, which lasts about a day, is thought to be an allergic reaction to toxins released when the penicillin kills massive numbers of spirochetes.

Expected results

The expected results of alternative therapies used as adjuncts to conventional antibiotic treatment, for stress reduction or similar purposes, would include improvements in the patient's emotional and spiritual quality of life. The effectiveness of homeopathic treatment for syphilis has not been evaluated in clinical trials, although there are anecdotal reports of successful treatment of syphilis by homeopathic methods.

Analysis of the Hoxsey formulae, however, indicates that they should not be used to treat syphilis or other venereal diseases. Two ingredients in the internal formula have toxic effects: queensroot contains an irritant that can cause inflammation or swelling of the skin and mucous membranes, whereas pokeweed can cause potentially fatal respiratory paralysis. In addition, the arsenic and antimony in the external formula could potentially cause heavy metal toxicity. Allopathic treatments of the disease, the use of penicillin in particular, provide a quick and virtually certain cure for syphilis when administered in its early stages.

Prevention

Immunity

Patients with syphilis do not acquire lasting immunity against the disease. No effective vaccine for syphilis had been developed as of 2008, even though the genome of *T. pallidum* was completely sequenced in 1998. The sequencing may, however, speed up the process of developing an effective vaccine. Prevention depends on a combination of personal and public health measures.

Lifestyle choices

The only reliable methods for preventing transmission of syphilis are sexual abstinence or monogamous relationships between uninfected partners. Condoms offer some protection but protect only the covered parts of the body.

Public health measures

CONTACT TRACING. United States law requires reporting of syphilis cases to public health agencies. Sexual contacts of patients diagnosed with syphilis are traced and tested for the disease. Tracing includes all contacts for the past three months in cases of primary syphilis and for the past year in cases of secondary disease. Neither the patients nor their contacts should have sex with anyone until they have been tested and treated.

Because of the rising incidence of syphilis abroad, a growing number of public health physicians recommend routine screening of immigrants, refugees, and international adoptees for syphilis.

All patients who test positive for syphilis should be tested for HIV infection at the time of diagnosis.

PRENATAL TESTING OF PREGNANT WOMEN. Pregnant women should be tested for syphilis at the time of their first visit for prenatal care and again shortly before delivery. Proper treatment of secondary syphilis in the mother reduces the risk of congenital syphilis in the infant from 90% to less than 2%.

Many obstetricians and gynecologists recommend routine screening of nonpregnant as well as pregnant women for syphilis. As of 2008, only about half of obstetricians and gynecologists in the United States screened nonpregnant women for **chlamydia** and **gonorrhea**, while fewer than one-third screen them for syphilis.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Chancre—The initial skin ulcer of primary syphilis, consisting of an open sore with a firm or hard base.

Condylomata lata—Highly infectious patches of weepy pink or gray skin that appear in the moist areas of the body during secondary syphilis.

Darkfield—A technique of microscopic examination in which light is directed at an oblique angle through the slide so that organisms look bright against a dark background.

General paresis—A form of neurosyphilis in which patients' personality, as well as their control of movement, is affected. Patients may develop convulsions or partial paralysis.

Gumma—A symptom that is sometimes seen in tertiary syphilis, characterized by a rubbery swelling or tumor that heals slowly and leaves a scar.

Index case—The first case of a contagious disease in a group or population that serves to call attention to the presence of the disease.

Jarisch-Herxheimer reaction—A temporary reaction to penicillin treatment for syphilis that includes fever, chills, and worsening of the skin rash or chancre.

Lues maligna—A skin disorder of secondary syphilis in which areas of ulcerated and dying tissue are formed. It occurs most frequently in HIV-positive patients.

Miasm—In homeopathy, an inherited weakness or predisposition to disease. One of the most powerful miasms is the so-called syphilitic miasm.

Nosode—A homeopathic remedy made from microbes, pus, or other diseased matter. The nosode called *Syphilinum* is made from a diluted solution of killed spirochetes.

Spirochete—A type of bacterium with a long, slender, coiled shape. Syphilis is caused by a spirochete.

Tabes dorsalis—A progressive deterioration of the spinal cord and spinal nerves associated with tertiary syphilis.

EDUCATION AND INFORMATION. Patients diagnosed with syphilis should be given information about the disease and counseling regarding sexual behavior and the importance of completing antibiotic treatment. It is also important to inform the general public about the transmission and early symptoms of syphilis and provide adequate health facilities for testing and treatment.

Resources

BOOKS

Barlow, David. *Sexually Transmitted Infections: The Facts.* Oxford: Oxford University Press, 2006.

Holmes, King K., et al., eds. *Sexually Transmitted Diseases.* New York: McGraw-Hill Medical, 2008.

Klausner, Jeffrey D., and Edward W. Hook III, eds. *Current Diagnosis & Treatment of Sexually Transmitted Diseases.* New York: McGraw-Hill Medical, 2007.

Silverstein, Alvin, Virginia B. Silverstein, and Laura Silverstein Nunn. *The STDS Update.* Berkeley Heights, NJ: Enslow, 2006.

Stokes, John H. *The Third Great Plague: A Discussion of Syphilis for Everyday People.* Charleston, SC: Biblio-Bazzar, 2006.

Winters, Adam. *Syphilis.* New York: Rosen, 2006.

PERIODICALS

Angus, J., et al. "The Many Faces of Secondary Syphilis: A Reemergence of an Old Disease." *Clinical & Experimental Dermatology* (September 2006): 741–745.

Buvé, Anne. "Should All Pregnant Women Be Screened for Syphilis?" *Women's Health* (September 2007): 547–555

Cole, M., K. Perry, and J. Parry. "Comparative Evaluation of 15 Serological Assays for the Detection of Syphilis Infection." *European Journal of Clinical Microbiology and Infectious Diseases* (October 2007): 705–713.

Coleman, Claire, and Maria Lohan. "Sexually Acquired Infections: Do Lay Experiences of Partner Notification Challenge Practice?" *Journal of Advanced Nursing* (April 2007): 35–43.

Meffert, Jeffrey J. "Sexually Transmitted Infections and HIV Control Efforts." *Expert Review of Dermatology* (October 2006): 655–665.

Pereira, Teresa M., et al. "Tertiary Syphilis." *International Journal of Dermatology* (November 2007): 1192–1195.

ORGANIZATIONS

Centers for Disease Control and Prevention, 1600 Clifton Rd. NE, Atlanta, GA, 30333, (800) 311-3435, http://www.cdc.gov/.

Rebecca J. Frey, PhD
David Edward Newton, Ed.D.

Systemic lupus erythematosus

Definition

Systemic lupus erythematosus (also called lupus or SLE) is a disease in which a person's immune system attacks and injures the body's own organs and tissues. Almost every system of the body can be affected.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Autoimmune disorder—A disorder in which the body's antibodies mistake the body's own tissues for foreign invaders. The immune system then attacks and causes damage to these tissues.

Immune system—The system of specialized organs, lymph nodes, and blood cells throughout the body that work together to prevent foreign organisms (bacteria, viruses, fungi, etc.) from invading the body.

Psychosis—Extremely disordered thinking with a poor sense of reality; may include hallucinations (seeing, hearing, or smelling things that are not really there).

Description

The body's immune system is a network of cells and tissues responsible for clearing the body of invading organisms, like bacteria, viruses, and fungi. Antibodies are special immune cells that recognize these invaders, and begin a chain of events to destroy them. In an autoimmune disorder like SLE, a person's antibodies begin to identify the body's own tissues as foreign. Cells and chemicals of the immune system damage the tissues of the body. The reaction that occurs in tissue is called inflammation. Inflammation includes swelling, redness, increased blood flow, and tissue destruction.

In SLE, some of the common antibodies that normally fight diseases are thought to be out of control. These include antinuclear antibodies, which are directed against the cell structure that contains genetic material (the nucleus), and anti-DNA antibodies, which are directed against genetic material (DNA).

SLE can occur in both males and females of all ages, but 90% of patients are women. The majority of these women are in their childbearing years. African Americans are more likely than Caucasians to develop SLE.

Occasionally, such medications as hydralazine and procainamide can cause symptoms very similar to SLE. This condition is called drug-induced lupus. Drug-induced lupus usually disappears after the patient stops taking the particular medication.

Causes and symptoms

The cause of SLE is unknown. Because the vast majority of patients are women, some research is being done to determine what (if any) link the disease has to female hormones. Susceptibility to SLE is known to have a genetic basis, although more than one gene is believed to be involved in disease development. As of 2002, notable progress has been made in narrowing the location of these genes. Because SLE patients may suddenly have worse symptoms (called a flare) after exposure to sunlight, such foods as **alfalfa** sprouts, and certain medications, environmental factors may also be at work.

The severity of symptoms varies over time, with periods of mild or no symptoms, followed by a flare. During a flare, symptoms increase in severity and new organ systems may become affected.

Many SLE patients have fevers, **fatigue**, muscle **pain**, weakness, decreased appetite, and weight loss. The spleen and lymph nodes are often swollen and enlarged. Recurrent **infections**, particularly those caused by bacteria, are common in patients with SLE. The development of other symptoms in SLE varies, depending on the organs affected.

- Joints. Joint pain and problems, including arthritis, are very common. About 90% of all SLE patients have these types of problems.
- Skin. A number of skin rashes may occur, including a red butterfly-shaped rash that spreads across the face. The "wings" of the butterfly appear across the cheekbones, and the "body" appears across the bridge of the nose. A discoid, or coin-shaped, rash causes red, scaly bumps on the cheeks, nose, scalp, ears, chest, back, and the tops of the arms and legs. The roof of the mouth may develop sore, irritated pits (ulcers). Hair loss is common. SLE patients tend to be very easily sunburned (photosensitive).
- Lungs. Inflammation of the tissues that cover the lungs and line the chest cavity causes pleuritis, with fluid accumulating in the lungs. The patient frequently experiences coughing and shortness of breath.
- Heart and circulatory system. Inflammation of the tissue surrounding the heart causes pericarditis; inflammation of the heart itself causes myocarditis. These heart problems may result in abnormal beats (arrhythmias), difficulty pumping the blood strongly enough (heart failure), or even sudden death. Blood clots often form in the blood vessels and may lead to complications.
- Nervous system. Headaches, seizures, changes in personality, and confused thinking (psychosis) may occur. The molecular mechanism responsible for brain dysfunction in lupus was identified in 2001.
- Kidneys. The kidneys may suffer significant destruction, with serious life-threatening effects. They may become unable to adequately filter the blood, leading to kidney failure.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

- Gastrointestinal system. Patients may experience nausea, vomiting, diarrhea, and abdominal pain. The lining of the abdomen may become inflamed (peritonitis).
- Eyes. The eyes may become red, sore, and dry. Inflammation of one of the nerves responsible for vision may cause vision problems, and blindness can result from inflammation of the blood vessels (vasculitis) that serve the retina.

Diagnosis

Diagnosis of SLE can be somewhat difficult. There are no definitive tests for diagnosing SLE. Many of the symptoms and laboratory test results of SLE patients are similar to those of patients with other diseases, including **rheumatoid arthritis**, **multiple sclerosis**, and various nervous system and blood disorders.

Laboratory tests that are helpful in diagnosing SLE include several tests for a variety of antibodies commonly elevated in SLE patients (including antinuclear antibodies, anti-DNA antibodies, etc.). A blood test called the lupus erythematosus cell preparation (or LE prep) test is also performed. The LE prep is positive in 70–80% of all patients with SLE. SLE patients tend to have low numbers of red blood cells (**anemia**) and low numbers of certain types of white blood cells. The erythrocyte sedimentation rate (ESR), a measure of inflammation in the body, tends to be quite elevated. Samples of tissue (biopsies) from affected skin and kidneys show characteristics of the disease.

The American Rheumatism Association developed a list of symptoms used to diagnose SLE. Research supports the idea that people who have at least four of the 11 criteria (not necessarily simultaneously) are extremely likely to have SLE. The criteria are:

- butterfly rash
- discoid rash
- photosensitivity
- mouth ulcers
- arthritis
- inflammation of the lining of the lungs or the lining around the heart
- kidney damage, as noted by the presence of protein or other abnormal substances called casts in the urine
- seizures or psychosis
- the presence of certain types of anemia and low counts of particular white blood cells
- the presence of certain immune cells, anti-DNA antibodies, or a falsely positive test for syphilis
- the presence of antinuclear antibodies

Treatment

Although there is no cure for SLE, a number of alternative treatments may help reduce symptoms.

- Acupuncture can relieve pain in joints and muscles.
- Chinese herbals are chosen based on treatment principles and the patients specific symptoms. A simple decoction for the treatment of SLE joint and kidney problems is Lei Gong Teng (*Caulis tripterygii*), Ji Xue Teng (*Caulis spatholobi*), and Gan Cao (*Radix glycyrrhizae*). Chinese patent medicines for SLE include Qin Jiao Wan (Gentiana Macrophylla Pill) and Kun Ming Shan Hai Tang Pian (Tripterygii Tablet).
- DHEA (dehydroepiandrosterone) treatment, in a small study, led to disease improvement and reduction in the use of corticosteroids.
- Diet. The SLE patient should drink plenty of water and eat a well balanced diet of whole, unprocessed foods that are low in fat and high in fiber. Mackerel, sardines, and salmon contain the beneficial fatty acid omega-3. Caffeine, sugar, alcohol, red meats, and alfalfa sprouts should be avoided. Because food allergies can be associated with SLE, an elimination/change in diet can help identify the offending foods (often wheat, dairy products, and/or soy).
- Enzyme therapy treats SLE with 10X U.S.P. of digestive enzymes, protease, lipase, amylase, and cellulase to improve digestion of foods, based on the theory that a leaky gut causes SLE.
- Exercise can reduce fatigue, reduce muscle weakness, speed weight loss, and increase energy, stamina, and confidence.
- Herbals include capsaicin (*Capsicum* species) cream, pau d'arco (*Tabebuia* species), pine (*Pinus* species) extract, wheat grass (*Triticum aestivum*), *Bupleurum falcatum*, licorice (*Glycyrrhiza glabra*), wild mexican yam (*Dioscorea villosa*), stinging nettle (*Urtica dioica*), flaxseed (*Linus usitatissimum*) oil, turmeric (*Curcuma* species), and borage (*Borago officinalis*) oil.
- Massage can relieve pain and reduce stress.
- Probiotic treatment using *Lactobacillus* species to restore a healthy balance of bacteria in the intestines.
- Stress management techniques, such as guided imagery, meditation, hypnotherapy, and yoga, can reduce stress that exacerbates SLE.
- Supplements commonly recommended for SLE patients include vitamins B, C, and E, beta-carotene, bioflavonoids, selenium, zinc, magnesium, a complete trace mineral supplement, glutamine, gamma-oryzanol, 1-butyrate, fructooligosaccharides (FOS), and omega-3 fatty acids (fish oil). Vitamin A is believed to help improve discoid skin rashes.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

- Support groups for SLE patients can provide emotional and social help.

Allopathic treatment

Treatment depends on the organ systems affected and the severity of the disease. Patients with a mild form of SLE can be treated with nonsteroidal anti-inflammatory drugs, or NSAIDs, like ibuprofen (Motrin, Advil) and aspirin. More severely ill patients with potentially life-threatening complications (including kidney disease, pericarditis, or nervous system complications) will require treatment with more potent drugs, including steroid medications and possibly other drugs that decrease the activity of the immune system (immunosuppressant drugs).

Kidney failure may require the blood to be filtered by a machine (dialysis) or even a kidney transplantation.

Expected results

The prognosis for patients with SLE varies, depending on the organ systems most affected and the severity of inflammation. Some patients have long periods of time with mild or no symptoms. About 90–95% of patients are still living after two years with the disease, 82–90% after five years, 71–80% after 10 years, and 63–75% after 20 years. The most likely causes of death during the first 10 years include infections and kidney failure. During years 11–20 of the disease, the development of abnormal **blood clots** is the most common cause of death.

For pregnant SLE patients, about 30% of the pregnancies end in miscarriage and about 25% of all babies are born prematurely. Most babies born to mothers with SLE are normal. Rarely, babies develop a condition called neonatal lupus which is characterized by a skin rash, liver or blood problems, and a serious heart condition.

Prevention

There are no known ways to avoid developing SLE. However, it is possible for a patient who has been diagnosed with SLE to prevent flares of the disease. Recommendations to prevent flares include decreasing sun exposure, getting sufficient sleep, eating a healthy diet, decreasing **stress**, and exercising regularly.

Resources

BOOKS

Aaseng, Nathan. *Autoimmune Diseases*. New York: F. Watts, 1995.

Hahn, Bevra Hannahs. "Systemic Lupus Erythematosus." In *Harrison's Principles of Internal Medicine*. 15th ed., edited by Anthony S. Fauci, et al. New York: McGraw-Hill, 2001.

Long, James W. *The Essential Guide to Chronic Illness*. New York: HarperPerennial, 1997.

Ravel, Richard. "Systemic Lupus Erythematosus (SLE)." In *Clinical Laboratory Medicine: Clinical Application of Laboratory Data*. St. Louis: Mosby, 1995.

Wallace, Daniel J. *The Lupus Book*. New York: Oxford University Press, 1995.

Ying, Zhou Zhong, and Jin Hui De. "Lupus Erythematosus." In *Clinical Manual of Chinese Herbal Medicine and Acupuncture*. New York: Churchill Livingston, 1997.

PERIODICALS

Graham, R. R., W. A. Ortmann, P. M. Gaffney, et al. "Localization of the Human SLE Susceptibility Genes Within the HLA Using a Recombinant Ancestral Haplotype Approach." *American Journal of Human Genetics* 69 (October 2001): 507.

"Lupus Brain Damage Pathway Identified Through Molecular Mechanism." *Immunotherapy Weekly* (December 12, 2001): 7.

Mann, Judy. "The Harsh Realities of Lupus." *The Washington Post* 120 (October 8, 1997): C12.

Noel, V., O. Lortholary, P. Casassus, et al. "Risk Factors and Prognostic Influence of Infection in a Single Cohort of 87 Adults with Systemic Lupus Erythematosus.&rdquo *Annals of the Rheumatic Diseases* 60 (December 2001): 1141–1144.

Umansky, Diane. "Living with Lupus." *American Health for Women* 16 (June 1997): 92+.

Yap, Hui-Kim, Siau-Gek Ang, Yee-Hing Lai, Vinod Ramgolam, and Stanley C. Jordan. "Improvement in Lupus Nephritis Following Treatment with a Chinese Herbal Preparation." *Archives of Pediatric and Adolescent Medicine* 153 (August 1999): 850–852.

ORGANIZATIONS

American College of Rheumatology. 1800 Century Place, Suite 250, Atlanta, GA 30345. (404) 633-3777. acr@rheumatology.org. http://www.rheumatology.org.

Lupus Foundation of America, Inc. 1300 Piccard Dr., Suite 200, Rockville, MD 20850. (800) 558-0121. http://www.lupus.org.

OTHER

Balch, T. Stephen. "Living Well with Lupus." January 1, 2001 [cited October 2002]. http://www.hamline.edu/~lupus/articles/living_well_with_lupus.html.

Hoffman, David L. "The Use of Herbs in the Treatment of Systemic Lupus Erythematosus." *HealthWorld Online*. [cited October 2002]. http://www.healthy.net.

Belinda Rowland
Rebecca J. Frey, PhD

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

T

Taheebo *see* **Pau d'arco**

T'ai chi

Definition

T'ai chi is an ancient Chinese **exercise** with movements that originate in **martial arts** practice. While used as a type of self-defense in its most advanced form, t'ai chi is practiced widely for its health and **relaxation** benefits. Those in search of well being and a way to combat **stress** have made what has also been called "Chinese shadow boxing" one of the most popular low-intensity workouts around the world.

Origins

Also known as t'ai chi ch'uan (pronounced *tie-jee chu-wan*), the name comes from Chinese characters that translated mean "supreme ultimate force." The concept of t'ai chi, or the "supreme ultimate," is based on the Taoist philosophy of yin and yang, or the nature of when opposites attract. Yin and yang combine opposing, but complementary, forces to create harmony in nature. By using t'ai chi, it is believed that the principal of yin and yang can be achieved. A disturbance in the flow of ch'i (qi), or the life force, is what **traditional Chinese medicine** bases all causes of disease in the body. By enhancing the flow of ch'i, practitioners of t'ai chi believe that the exercise can promote physical health. Students of t'ai chi also learn how to use the exercise in the form of meditation and mental exercise by understanding how to center and focus their cerebral powers.

In the traditional Chinese understanding of health and well-being, t'ai chi is not regarded as a self-sufficient compartment of a person's life, as physical exercise often is viewed by Westerners. Instead, t'ai chi is considered part of an overall way of healthful living that includes massage, proper diet, **meditation**, and herbal medicines as needed.

The origins of t'ai chi are rooted deep in the martial arts and Chinese folklore, causing its exact beginnings to be based on speculation. The much-disputed founder of t'ai chi is Zhang San-feng (Chang San-feng), a Daoist (Taoist) monk of the Wu Tang Monastery, who, according to records from the Ming-shih (the official records of the Ming dynasty), lived sometime during the period from 1391–1459. Legend states that Zhang happened upon a fight between a snake and a crane, and, impressed with how the snake became victorious over the bird through relaxed, evasive movements and quick counterstrikes, he created a fighting-form that shadowed the snake's strongest attributes. With his experience in the martial arts, Zhang combined strength, balance, flexibility, and speed to bring about the earliest form of t'ai chi.

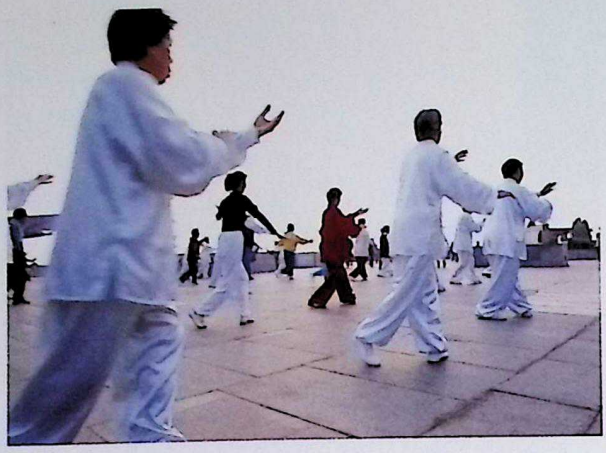
Historians also link Zhang to joining yin-yang from Taoism and "internal" aspects together into his exercises. This feeling of inner happiness, or as a renowned engineering physicist and t'ai chi master, Dr. Martin Lee, states in his book *The Healing Art of t'ai Chi*, "l; of becoming one with nature," remains a primary goal for those who practice t'ai chi. Although its ancient beginnings started as a martial art, t'ai chi was modified in the 1930s to the relaxing, low-intensity exercise that continues to have the potential to be transformed into a form of self-defense, similar to karate or kung-fu.

Benefits

The art of t'ai chi is many things to the many who practice it. To some, it is a stretching exercise that incorporates a deep-breathing program. To others, it is a martial art—and beyond this, it is often used as a

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri



T'ai chi on The Bund, Shanghai, China. *(© Jon Arnold Images Ltd / Alamy)*

dance or to accompany **prayer**. While the ways in which it is used may vary, one of the main benefits for those who practice it remains universal—t'ai chi promotes good health. This sense of well being complements t'ai chi's additional benefits of improved coordination, balance, and body awareness, while it also calms the mind and reduces stress. Those in search of harmony between the mind and the body practice "dynamic relaxation."

Dr. Martin Lee believes that the ancient art also holds healing powers. In his book, *The Healing Art of t'ai Chi,* he states: "By practicing t'ai chi and understanding chi and its breathing techniques, I was able to heal my **allergies** and other ailments." Lee contends that stress is the culprit of much of the pain and suffering that are a part of everyday life. The growing evidence that stress contributes to devastating physical and mental ailments has led Lee to teach a systematic, effective, and manageable way to restore both body and mind to a natural, stress-free state. As of 1996, Lee has been teaching t'ai chi for 20 years to help his students with physical ailments that have been caused by stress. He believes that illness can be overcome through understanding the body as a mental and physical system, which is accomplished through t'ai chi.

While the martial arts offer very vigorous physical workouts and often result in injuries, the practice of t'ai chi is a good alternative to these sports without overstraining the body. Those with bad backs have also found t'ai chi to ease their discomfort.

Description

Zhang, the notable originator of t'ai chi, created a combination of movements and beliefs that led to the formation of the fundamental "Thirteen Postures" of his art. Over time, these primary actions have transformed into soft, slow, relaxed movements, leading to a series of movements known as the form. Several techniques linked together create a form. Proper posture is a key element when practicing t'ai chi to maintain balance. All of the movements used throughout the exercise are relaxed with the back straight and the head up.

Just as the movements of t'ai chi have evolved, so have the various styles or schools of the art. As the form has grown and developed, the difference in style along with the different emphasis from a variety of teachers has as well. A majority of the different schools or styles of t'ai chi have been given their founder's surnames.

The principal schools of t'ai chi include:

- Chen style
- Hao (or Wu Shi) style
- Hu Lei style
- Sun style
- Wu style
- Yang style
- Zhao Bao style.

Many of the most commonly used groupings of forms are based on the Yang style of t'ai chi, developed by Yang Pan-Hou (1837–1892). Each of the forms has a name, such as "Carry the Tiger to the Mountain," and as the progression is made throughout the many forms, the participant ends the exercise almost standing on one leg. While most forms, like "Wind Blows Lotus Leaves," has just one movement or part, others, like "Work the Shuttle in the Clouds," have as many as four. While the form is typically practiced individually, the movement called "Pushing Hands" is a sequence practiced by two people together.

Preparations

Masters of t'ai chi recommend that those who practice the art begin each session by doing a warm-up of gentle rotation exercises for the joints and gentle stretching exercises for the muscles and tendons. Some other suggestions to follow before beginning the exercise include: gaining a sense of body orientation; relaxation of every part of the body; maintaining smooth and regular breathing; gaining attention or feeling; being mindful of each movement; maintaining proper posture; and moving at the same pace throughout each movement. The main requirement for a successful form of t'ai chi is to feel completely comfortable while performing all of the movements.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

LAO TZU

Lao Tzu (sixth century ***B.C.***) is believed to have been a Chinese philosopher and the reputed author of the *Tao te ching*, the principal text of Taoist thought. He is considered the father of Chinese Taoism.

The main source of information on Lao Tzu's life is a biography written by the historian Ssu-ma Ch'ien (145-86 *B.C.*) in his *Records of the Historian* . Actually, Lao Tzu is not really a person's name and is only an honorific designation meaning old man. It was common in this period to refer to respected philosophers and teachers with words meaning old or mature. It is possible that a man who assumed the pseudonym Lao Tzu was a historical person, but the term Lao Tzu is also applied as an alternate title to the supreme Taoist classic, *Tao te ching* (Classic of the Way and the Power).

An important quality of the tao is its "weakness," or "submissiveness." Because the tao itself is basically weak and submissive, it is best for man to put himself in harmony with the tao. Thus, the *Tao te ching* places strong emphasis on nonaction (*wu wei*), which means the absence of aggressive action. Man does not strive for wealth or prestige, and violence is to be avoided. This quietist approach to life was extremely influential in later periods and led to the development of a particular Taoist regimen that involved special breathing exercises and special eating habits that were designed to maintain quietude and harmony with the tao.

Precautions

Although t'ai chi is not physically demanding, it requires close attention to one's posture. Those who want to practice the exercise should notify their physician before beginning. The physician will know whether the person is taking medications that might interfere with balance, or has a condition that could make a series of t'ai chi movements unwise to attempt.

Research and general acceptance

While the reasons why t'ai chi is practiced vary, research has uncovered several reasons why it may help many medical conditions. For example, people with **rheumatoid arthritis** (RA) are encouraged to practice t'ai chi for its graceful, slow sweeping movements. Its ability to combine stretching and range-of-motion exercises with relaxation techniques work well to relieve the stiffness and weakness in the joints of RA patients. An ongoing research program at Stanford University in California is evaluating the beneficial effects of t'ai chi on patients with **fibromyalgia**. A study of fibromyalgia patients in Georgia reported in 2003 that t'ai chi brought about significant improvement in the patients' control of their symptoms.

T'ai chi has also been shown to benefit patients with **osteoarthritis** (OA). A group of Korean researchers found that women diagnosed with OA showed significant improvement in their balance and abdominal muscle strength after a 12-week program of Sun-style t'ai chi.

In 1999, investigators from Johns Hopkins University in Baltimore, Maryland, studied the effects of t'ai chi on those with elevated blood pressure. Sixty-two sedentary adults with high-normal blood pressure or stage I **hypertension** who were aged 60 or older began a 12-week aerobic program or a light-intensity t'ai chi program. The exercise sessions both consisted of 30-minute sessions, four days a week. The study revealed that while the aerobics did lower the systolic blood pressure of participants, the t'ai chi group systolic level was also lowered by an average of seven points—only a point less than the aerobics group. Interestingly, t'ai chi hardly raises the heart rate while still having the same effects as an intense aerobics class.

In addition to lowering blood pressure, research suggests that t'ai chi improves heart and lung function. The exercise is linked to reducing the body's level of a stress hormone called cortisol, and to the overall effect of higher confidence for those who practice it. As a complementary therapy, t'ai chi is also found to enhance the mainstream medical care of **cancer** patients who use the exercise to help control their symptoms and improve their quality of life.

Physical therapists investigated the effects of t'ai chi among 20 patients during their recovery from coronary artery bypass surgery. The patients were placed into either the t'ai chi group or an unsupervised control group. The t'ai chi group performed classical Yang exercises each morning for one year, while the control group walked three times a week for 50 minutes each session. In 1999, the study reported that after one year of training, the t'ai chi group showed significant improvement in their cardiorespiratory function and their work rate, but the unsupervised control group displayed only a slight decrease in both areas.

T'ai chi has also shown to keep people from falling—something that happens to one in three people over age 65 each year. Researchers from Emory University in

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Aerobics—Any of various forms of sustained vigorous exercise, such as jogging, calisthenics, or jazz dancing, intended to stimulate and strengthen the heart and respiratory system.

Cortisol—A steroid hormone released by the cortex (outer portion) of the adrenal gland when a person is under stress.

Fibromyalgia—A chronic disease syndrome characterized by fatigue, widespread muscular soreness, and pain at specific points on the body.

Qi—The traditional Chinese term for vital energy or the life force. The word is also spelled "ki" or "chi" in English translations of Japanese and Chinese medical books.

Taoism—A Chinese religion and philosophy based on the doctrines of Laotse which advocates simplicity and selflessness.

Atlanta, Georgia, had dozens of men and women in their 70s and older learn the graceful movements of t'ai chi. The study discovered that those who learned to perform t'ai chi were almost 50% less likely to suffer falls within a given time frame than subjects who simply received feedback from a computer screen on how much they swayed as they stood. Those who suffer falls experience greater declines in everyday activities than those who do not fall, and are also at a greater risk of requiring placement in a nursing home or other type of assisted living. Researchers recommend the use of t'ai chi for its ability to help people raise their consciousness of how their bodies are moving in the environment around them. By raising awareness of how the body moves, people can focus on their relationship to their physical environment and situations they encounter everyday.

In addition to studying the cardiovascular and range-of-motion benefits of t'ai chi, researchers are also investigating its positive effects on the immune system. A team of scientists in California reported in 2003 that t'ai chi boosts the resistance of older people to the **shingles** virus— a virus that is both more common and more severe in the elderly.

Some research done in the United States focuses on the emotional and psychological benefits of t'ai chi. One recently discovered advantage of t'ai chi is its ability to hold people's interest longer than many other forms of exercise. One study in Oregon found that only 20% of people enrolled in a six-month t'ai chi program dropped out before the end, compared to an average of 55% for other forms of exercise. With regard to **depression**, a study of college students found that those who were taking t'ai chi classes had a lower rate of depression than students enrolled in other fitness programs.

One interesting recent change in the acceptance of t'ai chi in the United States and Canada is its growing popularity among men. In the 1970s and 1980s, many adult males regarded t'ai chi as a form of exercise that was not challenging enough for "real men." Since the late 1990s, however, more men have begun practicing t'ai chi in order to relieve stress or as a form of cross-training with another sport.

While the additional benefits of t'ai chi remain to be studied in the United States, it continues to be widely practiced in this and other Western countries. The ancient art maintains its prominence in China, where many people incorporate it into their daily routines at sunrise.

Training and certification

Masters of t'ai chi are trained extensively in the various forms of the art by grandmasters who are extremely skillful of the exercise and its origins. For those who wish to learn t'ai chi from a master, classes are taught throughout the world in health clubs, community centers, senior citizen centers, and official t'ai chi schools. Before entering a class, the instructor's credentials should be reviewed, and they should be questioned about the form of t'ai chi they teach. Some of the more rigorous forms of the art may be too intense for older people, or for those who are not confident of their balance. Participants are encouraged to get a physician's approval before beginning any t'ai chi program.

There is no age limitation for those who learn t'ai chi, and there is no special equipment needed for the exercise. Participants are encouraged to wear loose clothing and soft shoes.

Resources

BOOKS

Lee, Martin, Emily Lee, Melinda Lee, and Joyce Lee. *The Healing Art of T'ai Chi*. New York: Sterling Publishing Company, Inc., 1996.

Pelletier, Kenneth R., MD. *The Best Alternative Medicine*, Part I: Sound Mind, Sound Body. New York: Simon & Schuster, 2002.

Reid, Daniel. *Chinese Herbal Medicine*. Boston, MA: Shambhala, 1996.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

PERIODICALS

Christou, E. A., Y. Yang, and K. S. Rosengren. "Taiji Training Improves Knee Extensor Strength and Force Control in Older Adults." *Journals of Gerontology, Series A: Biological Sciences and Medical Sciences* 58 (August 2003): 763–766.

Cooper, Bob. "An Exercise in Vitality: Put Away Your Prejudices— T'ai Chi Ain't Just for Senior Citizens and Vegans." *Men's Fitness* 18 (September 2002): 86-91.

Filusch Betts, Elaine. "The Effect of T'ai Chi on Cardiorespiratory Function in Patients with Coronary Artery Bypass Surgery." *Physical Therapy* (September 1999).

Irwin, M. R., J. L. Pike, J. C. Cole, and M. N. Oxman. "Effects of a Behavioral Intervention, T'ai Chi Chih, on Varicella-Zoster Virus Specific Immunity and Health Functioning in Older Adults." *Psychosomatic Medicine* 65 (September-October 2003): 824–830.

Li, F., K. J. Fisher, P. Harmer, and E. McAuley. "Delineating the Impact of T'ai Chi Training on Physical Function Among the Elderly." *American Journal of Preventive Medicine* 23 (August 2002): 92-97.

Song, R., E. O. Lee, P. Lam, and S. C. Bae. "Effects of T'ai Chi Exercise on Pain, Balance, Muscle Strength, and Perceived Difficulties in Physical Functioning in Older Women with Osteoarthritis: A Randomized Clinical Trial." *Journal of Rheumatology* 30 (September 2003): 2039–2044.

Taggart, H. M., C. L. Arslanian, S. Bae, and K. Singh. "Effects of T'ai Chi Exercise on Fibromyalgia Symptoms and Health-Related Quality of Life." *Orthopaedic Nursing* 22 (September-October 2003): 353–360.

ORGANIZATIONS

American Association of Oriental Medicine. 5530 Wisconsin Avenue, Suite 1210, Chevy Chase, MD 20815. (301) 941-1064. www.aaom.org.

Canadian Taijiquan Federation. P.O. Box 421, Milton, Ontario L9T 4Z1. www.canadiantaijiquanfederation.ca.

Patience T'ai Chi Association. 2620 East 18th Street, Brooklyn, NY 11235. (718) 332-3477. www.patience taichi.com.

OTHER

WebMD. http://WebMD.com.

"Yang Style T'ai Chi Ch'uan." http://www.chebucto.ns.ca/Philosophy/Taichi/styles.html.

Beth Kapes
Rebecca J. Frey, PhD

T'ai chi ch'uan *see* **T'ai chi**

Tang shen *see* **Codonopsis root**

Tangerine peel

Description

This popular, widely known fruit goes by a variety of names, creating some possible confusion at times as to which plant one is dealing with. Commonly known as mandarin in much of the world (in Japan it goes by satsuma), the fruit is most often called tangerine in the United States. Generally listed under the botanical name *Citrus reticulata*, it is also known as *C. nobilis*, *C. madurensis*, *C. unshiu*, *C. deliciosa*, *C. tangerina* or *C. erythrosa*.

A native of Asia, the plant was introduced into Europe early in the nineteenth century. By mid-century, it had spread to the United States, where it was rechristened tangerine. Today, the easily cultivated plant is grown around the Mediterranean, in north Africa, and in both North and South America. Tangerines are generally bigger, rounder, and have more of a yellow-colored skin; mandarins, on the other hand, are smaller, more angular, and deeper orange in color.

The oils produced from the many different cultivars of this plant can vary significantly in chemical composition, reflecting both the particular variety, the country of origin, and the local growing environment.

This small, evergreen tree reaches a height of up to about 20 ft (6 m). It has glossy, pointed leaves and produces fragrant white flowers. The round, fleshy fruit is green when young but ripens to a bright orange or yellow-orange. It was traditionally presented as a gift to the Mandarins of China.

General use

Tangerine peel—called *Chen Pi* or, sometimes, *Ju Hong* meaning red tangerine peel—has a lengthy history of use in **traditional Chinese medicine**. It is commonly used to treat **indigestion**, **diarrhea**, **vomiting** and other forms of digestive weakness or upset, as well as **hiccups** and certain types of coughs (specifically, wet coughs involving excessive production of phlegm). It is said to settle, regulate, and normalize the flow of qi (in traditional Chinese medicine, the term for life force), and to break up congestion. In addition, it is believed to enhance the flow of liquids through the body.

The peel of young, green tangerines is called *Qing Pi* and is used to treat pain—particularly in the side and the breast, as well as **pain** from hernia. In addition, the green peel has been used in the treatment of low blood pressure and (in combination with other herbs) breast inflammation.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

C. reticulata is also an ingredient in many traditional Chinese tonics. Among these are the Great Orange Peel Decoction used to treat **gout**, the Two Cure Decoction used to control **morning sickness** in pregnant women, and the Five Seed Decoction used to treat male sexual problems, including low sperm count, **impotence**, and premature ejaculation. A related fertility-and-longevity formula, The Duke of Chou's Centenarian Liquor, is said to have been prescribed for the founder of the Chou Dynasty, more than 3,000 years ago. Tangerine peel is also used to make Dr. Huang's Internal Injury Poultice, which is said to promote healing and ease inflammation in connection with pulled muscles, **sprains**, twisted tendons, and other sports injuries.

The other primary application for *C. reticulata* is in **aromatherapy**, where it is used to treat a wide variety of conditions. Some of these uses parallel those in Traditional Chinese medicine: for digestive and intestinal complaints (as well as hiccups), to stimulate the lymph system, to eliminate excess fluid, to boost the flow of urine, and to combat **obesity**. In France and other parts of Europe, it is known particularly as a remedy for children and the elderly—both for digestive problems and to soothe overwrought young minds. One of the gentler citrus oils, it is also used frequently by pregnant women, and is generally said to be a calmative and tranquilizer, helpful in treating nervous tension, emotional **stress**, **depression**, and sleep-related difficulties.

Mirroring its use in cosmetics, the oil is also used to treat various skin conditions (such as healing scars, stretch marks, and even **acne**), and to discourage excessively oily skin.

Tangerine peel is also an ingredient in certain herbal formulas for pets, particularly to treat excess **gas**.

A 2002 study aimed to test the effect of aromatherapy on pain perception. One of the pleasant odors included orange water, while medicinal odors included vinegar and a dental product. The study found that pleasant odors reduced pain perception in women, but not in men. The study suggested that in clinical settings, smells like disinfectants might promote the perception of pain in some patients.

Preparations

In Traditional Chinese medicine, the dried peel of the fruit is used, often aged (sometimes until it turns black in color) and sometimes even toasted in a wok. *Chen Pi* means aged peel. A decoction is then made from the peel in combination with other herbs. Both the outermost peel (exocarp) and the inner peel (pericarp) are used, for different specific medicinal purposes. *C. reticulata* is also used to make poultices—a paste of finely powdered herbs that is applied externally to help heal internal injuries. Tangerine peel is also available in pill form.

Aromatherapy, on the other hand, relies on the essential oil extracted from the peel. Depending on the precise type of fruit used, the oil can range from yellow-orange to orange in color, and its chemical properties and uses will also vary. Among the primary chemical constituents of the oil are limonene (as much as 90%), geraniol, citral, and citronella. Several of these (most prominently limonene) have been investigated in the laboratory, showing some potential as **cancer** inhibitors. Mandarin oil also contains nitrogen compounds such as methyl methyl-anthranilate, which may not be present in tangerine oil.

All of these oils are cold-pressed. In addition, yet another type of mandarin oil is made from the plant's twigs and leaves, using steam distillation. Mandarin oil is widely used in beverages for its intensely orange flavor, as well as in the production of cosmetics and soaps. It blends readily with other oils. Tangerine oil, on the other hand, is not commonly used in cosmetics.

The oil can be applied in a variety of ways: in therapeutic massage, in healing baths, in compresses, or in unguents (healing salves or ointments). It can also be taken in food or drink, put in a diffuser or inhaler, or used in pillows.

Precautions

Because of the potential confusion over which variety of the plant is called for in a given situation, extra caution is advised to avoid compromising the therapeutic action, introducing unwanted elements, or provoking unintentional interactions. This is particularly true in the context of Traditional Chinese medicine in which many different kinds of citrus fruits are used, often for overlapping but not identical purposes. In aromatherapy too, however, care should be taken to determine which oil is required for the desired formula or use.

Side effects

Occasional allergic reactions to tangerine peel have been noted in the form of prolonged **sneezing**, **cough**, chest discomfort, and restlessness.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Interactions

There are no known interactions.

Resources

BOOKS

Lawless, Julia. *The Illustrated Encyclopedia of Essential Oils.* Rockport, Mass.: Element Books, 1995.

Reid, Daniel. *A Handbook of Chinese Healing Herbs.* Boston: Shambhala Publications, 1995.

PERIODICALS

Berger, Joanne M. "Smells Like Relief (Indications)." *Internal Medicine News* (August 1, 2002): 39.

Peter Gregutt
Teresa G. Odle

TB *see* **Tuberculosis**

TCM *see* **Traditional Chinese medicine**

Tea tree oil

Description

Tea tree oil (*Melaleuca alternifolia*) is a multipurpose herb that traces its roots to the Aboriginal people of Australia. For thousands of years, they used the leaves as an antiseptic and antifungal by crushing the leaves and making a mudpack. However, the plant didn't receive the name "tea tree" until 1770, when the name was given by the British explorer Captain James Cook and his crew. Although Cook's crew first used the leaves for tea, they later mixed them with spruce leaves as a beer. The plant's medicinal properties remained a secret with the Australian aboriginal people until the early 1920s when Sydney, Australia chemist, Dr. Arthur Penfold, researched its antiseptic properties. In 1929, along with F.R. Morrison, Penfold published "Australian Tea Trees of Economic Value." This started a flurry of research into tea tree oil. The Australian government considered tea tree oil a World War II essential for their armed forces' first aid kits. After the war, increased use of pharmaceutical antibiotics decreased tea tree oil's appeal everywhere except in Australia. Tea tree oil started to regain its popularity in 1960, with a recharge in its research around the world. Today, *Melaleuca alternifolia* is also grown in California.

New England Tablelands Tea Tree of Australia. *(Geoff Bryant / Photo Researchers, Inc.)*

Properties of tea tree oil

Tea tree oil's properties are contained in the oils of its leaves. The oil is steam distilled from the leaves and then tested for chemical properties, which can number between 50 and 100. This may explain tea tree oil's many beneficial uses. The main active components are terpinen-4-ol, 1,8-cineole, gamma-terpinene, p-cymene and other turpenes. Its aroma is one of a healthy pleasant disinfectant.

General use

Antibacterial

The most promising new function of tea tree oil is to counter methicillin-resistant *Staphylococcus aureus* (MRSA), also called the hospital super bug. In United States and European hospitals, MRSA grew from under 3% in the 1980s to 40% in the late 1990s. This super bug attacks people who have **wounds**, such as post-operative **infections**, and a depressed immune system. MRSA resists conventional antibiotics, except Vancomycin. A Thursday Plantation *in vitro* study, at East London University, comparing Vancomycin and tea tree oil, shows the latter as a powerful alternative. This study corroborated the University of Western Australia study by Thomas Riley and Christine Carson. Because the spread of MRSA occurs mainly by hands, one London hospital uses tea tree oil soap for staff and patient hygiene.

Research reported on in 2002 reported that tea tree oil performed better than certain antibiotics in fighting MRSA, but the sample size of the study was small. Later studies involving herpes simplex and

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

orthopedic infections also showed promising results for tea tree oil, but again failed to show enough statistical significance to prove tea tree oil works better than antibiotics.

Tea tree oil works as an expectorant when inhaled or taken internally and has a soothing effect; therefore, it can be used for throat and chest infections, and clearing up mucus. It is also effective against earaches, cystitis, and gingivitis. Inhaling steaming hot water with five drops of tea tree essential oil added can not only soothe coughing and plugged noses, but doing so at the start of the infection might stop it from spreading. Gargling with six drops of tea tree oil in a glass of warm water may soothe sore throats.

Antiseptic

Tea tree essential oil is an excellent natural antiseptic for skin infections. The oil immediately penetrates outer skin layers and mixes with body oils to treat such conditions as insect **bites**, **cuts**, **burns**, **acne**, infected wounds, **bruises**, **boils**, **scabies**, lice, chilblains, **diaper rash**, **hives**, poison ivy and **oak**, **prickly heat**, and sunburn.

A 1990 study published in the *Medical Journal of Australia*, outlined the results of using 5% tea tree oil gel versus 5% benzoyl peroxide lotion for acne. The 124 participants showed improvement with both treatments. Benzoyl peroxide worked better with non-inflamed acne while the tea tree gel caused only 44% of side effects such as dryness and red skin compared to benzoyl peroxide's 79%.

The simplest methods to treat acne with tea tree oil are to wash the face with soap containing tea tree essential oil or swab pure tea tree oil on the acne twice daily. (Too high a percentage or direct application of essential oil can cause irritation and blistering.) Applying tea tree oil cream can prevent blistering from sunburns.

Anti-inflammatory

Tea tree oil has pain-numbing properties and can be used topically for sprains, arthritis, bunions, **bursitis**, **eczema**, **gout**, carpal tunnel syndrome, and hemorrhoids. It is best to use products containing essential tea tree oil, since the pure essential oil would be irritating to sensitive areas.

A study at the Flinders University of Adelaide researched tea tree oil's affects on various inflammations in the body to discover if the essential oil reduces the inflammation besides killing the microorganisms causing it.

For relief from **pain** caused by the various arthritic afflictions (**rheumatoid arthritis**, **osteoarthritis**, etc.), 18 drops of tea tree oil can be combined with 1/8 cup of almond oil, then put in a dark bottle and shaken before applying topically two to four times a day as a massage oil. It can also be used to massage the wrists for **carpal tunnel syndrome**. A dozen drops of tea tree oil can be added to bath water.

Anti-fungal

Tea tree oil is an excellent antifungal and can be employed to treat *Candida albicans*, **athlete's foot**, **jock itch**, ringworm, thrush, and onychomycosis (nail infections).

A study published in the *Journal of Family Practice* in 1994 compared the treatment of onychomycosis with a pharmaceutical clotrimazole solution at 1% to tea tree oil at 100% on 117 patients. After six months, the two groups had similar results, with the culture from the clotrimazole group showing 11% infection and that of the tea tree oil group, 18%.

For ringworm and nail infections, besides applying a tea tree gel, cream, or essential oil, bath and laundry water can be disinfected by adding a few drops of tea tree essential oil to the tub and washing machine.

Preventative

Tea tree oil can boost suppressed immune systems and help those with chronic illnesses such as chronic **fatigue** syndrome. Surgeons in Australian hospitals treat patients in these situations with tea tree oil before surgery.

To increase the power of the immune system, several drops of tea tree oil can be added to the bath or weekly massages. A few drops of tea tree oil can also be added to vaporizers.

Personal hygiene

To fight plaque, brushing with toothpaste containing tea tree oil or adding some to regular toothpaste is advised, as is adding a few drops of tea tree oil to mouthwash. The latter helps both teeth and gums. For sore gums, a few drops of the oil can be swabbed on the sore area.

Household cleaning

Tea tree oil's natural solvent properties make it an excellent biodegradable cleaning product. It can be used for washing cotton diapers, as a deodorizer, disinfectant, to remove mold and to treat houseplants for molds, fungus, and **parasitic infections**.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Animal care

Because pets also suffer many of the same diseases as humans, tea tree oil can also be used as treatment for such diseases as arthritis, fleas, bad breath, **gum disease**, abscesses, **dermatitis**, lice, parasites, ringworm, **rashes** and **sprains**. Dogs, in particular, are susceptible to mange, a hard-to-eliminate skin disorder causing **hair loss** and **itching**. Washing a dog or cat using a mild soap and water, then clipping or shaving excess hair before soaking a cotton puff with tea tree oil and saturating on specific areas twice daily will help treat mange. For overall application, mixing one teaspoon tea tree oil with 1/3 cup of water and spraying the mixture from a plant mister onto the mange areas is advised.

When using tea tree oil for animals, it should always be diluted, as full strength can cause such reactions as muscle tremors and poor coordination. The oil should be kept away from the eyes.

Precautions

It is wise to check with your health care practitioner when using tea tree oil internally. Some people might be allergic to the cineole in tea tree oil, although studies show that the 1,8-cineole part improves the skin's absorption of the oil. Dr. Ian Southwell, Research Scientist at the New South Wales Department of Australia suggests the **allergies** could be from alcoholic tea tree oil substances. In 1998-99, skin sensitivity studies conducted at the University of Western Australian Centre for Pathology and Medical Research showed that only three out of 219 volunteers had an allergic reaction to only one or two tea tree oil ingredients. Pure tree oil is also contraindicated for babies, young children, pregnant women, and some pets.

Australian Standard No. AS 2782-1985 requires tea tree oil contain a minimum of terpinen-4-ol over 30% and cineole content of 15%. Tea tree oil is not to be used for daily hygiene, and is toxic to the liver and kidneys in high or chronic doses. High doses can also be irritating to the skin and provoke an allergic reaction in some people.

Resources

BOOKS

Ali, Dr. Elivs, Dr. George Grant, and Ken Vegotsky. *The Tea Tree Oil Bible*. AGES Publications, Inc. 1999

Murry, Michael. *The Healing Power of Herbs*. Prima Publishing, 1995

Rothenberg, Mikel A., and Charles F. Chapman. *Barron's Dictionary of Medical Terms* third edition. Barron's Education Series, Inc. New York, 1994.

PERIODICALS

"Ti-tree Oil and Chickenpox." *Aromatherapy Quarterly* (Summer 1986):12.

Walsh, Nancy. "Tea Tree Oil for Infections." *Internal Medicine News* (July 1, 2002):16–21.

OTHER

"Antimicrobial activity of Tea Tree Oil." http://www.pharminfo.com/pubs/msb/teaoil240.html.

Australian Tea Tree Oil—Product Safety and recent progress in Research and Development. Courtesy of Robert Riedl, Technical Manager, Regional Affairs, from his lecture in London, England, September, 1999, Thursday Plantation Laboratories Limited, New South Wales, Australia.

The Tea Tree Oil Information Site. http://www.teatree.co.uk.

Thursday Plantation. http://www.thursdayplantation.com.

Sharon Crawford
Teresa G. Odle

Teen nutrition

Definition

Teen **nutrition** involves making sure that teens eat healthy foods to help them grow and develop normally, as well as to prevent **obesity** and future disease. Following dietary guidelines recommended by research and medical professionals supports proper nutrition. The guidelines include selections from different food groups to provide the vitamins and minerals teens need as they grow through puberty and into adulthood. The U.S. Department of Agriculture's (USDA) Food Guide Pyramid recommends how many servings a day a child should eat of each food group, such as milk,

Healthy eating at fast food restaurants

- Skip "value-sized" or "super-sized" meals
- Choose a grilled chicken sandwich or a plain, small burger
- Use mustard instead of mayonnaise
- Limit fried foods or remove breading from fried chicken, which can cut half the fat
- Order garden or grilled chicken salads with light or reduced-calorie dressings
- Choose water or fat-free or low-fat milk instead of sweetened soda

SOURCE: National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health, U.S. Department of Health and Human Services

(Illustration by GGS Information Services. Cengage Learning, Gale)

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

vegetables, fruits, fats, and meats. By sticking closely to the guidelines, parents can ensure their teens get a well-balanced diet that supplies the vitamins and calories they need to stay healthy and support growing bodies and active lifestyles.

Origins

Humans, unlike plants, cannot manufacture the nutrients they need to function. Each culture over centuries has developed its own traditional diet. In Western civilization, many of these **diets** have developed into convenient, fatty and sugary foods, leading to obesity even in children and teens.

Advice on nutritional choices predates recorded language, but the first science-based approach to a healthy diet probably began just over 100 years ago. W. O. Atwater, the first director of the Office of Experiment Stations in the USDA and a pioneer in the field of nutrition investigation, developed some of the components needed for a food guide. He created food tables with data on protein, fat, carbohydrate, mineral matter, and fuel value for common foods.

Food guides with food groups similar to those used today first appeared in USDA publications in 1916 and were developed by nutrition specialist Caroline L. Hunt. The first daily food guide was published under the title *Food for Young Children*. In the early 1930s, the **Depression** caused economic restraints on families and the USDA responded with advice on how to select healthy foods more cheaply. In 1941, the Food and Nutrition Board of the National Academy of Sciences released the first recommended dietary allowances (RDAs) for calories and essential nutrients. The nine nutrients included on the list were protein, **iron**, **calcium**, vitamins A, C, and D, thiamin, **riboflavin**, and **niacin**.

Throughout the years following the release of the first guidelines, recommendations were debated and revised. The new food guide was first presented in 1984 as a *food wheel*. The USDA first used a pyramid to represent the food groups in 1992 after intensive research on the most effective way to visually communicate healthy eating by portion and food choice. Although it has been modified over the years, the pyramid has continued to represent the food groups and continues to be revised.

Benefits

The Food Guide Pyramid and other healthy eating recommendations generally apply to children age two and older. When used as a starting point for planning family meals and snacks, applying these sensible recommendations to teenagers' daily diets can encourage good eating habits before adulthood. This will help teens develop mentally and physically and prevent obesity or eating disorders. Many nutritional experts agree that if teens eat a balanced diet that includes all of the recommended food groups, they will not need to take any vitamin supplements. Eating a balanced diet with a variety of foods will give teens the energy they need to stay physically active, which is important to their growth, mental health, and to keeping obesity in check.

KEY TERMS

Anorexia—A serious and sometimes fatal eating disorder characterized by intense fear of being fat and severe weight loss. It primarily affects young females. Sufferers may see themselves as fat even when they are underweight.

Bulimia—Sometimes called binge eating, this eating disorder consists of cravings for foods that often result in periods of continuous eating followed by purging (forced vomiting or diarrhea) and depression or food-deprivation, etc.

Malnutrition—Any disorder of nutrition caused by insufficient or unbalanced diet that can result in impaired absorption or use of foods.

Puberty—The period of life in which boys' and girls' sexual organs begin to reach maturity and the ability to reproduce begins.

Description

In spite of recommendations, the diet quality of most teens is not what it should be. Today, about nine million U.S. children ages six to 19 are overweight. The number of teens age 12 to 19 with weight problems has tripled since the 1980s. Body mass index (BMI) is a measurement system used to assess if a child (or adult) is underweight, overweight, or at risk for becoming overweight. Pediatricians use height and weight measurements taken at a child's regular checkups to determine his or her BMI. Anyone who weighs more than 85% of teens the same height, age, and sex is considered overweight. The Centers for Disease Control (CDC) considers anyone in the 95th percentile obese. To help guide teens, their families, schools, and others in making healthy nutritional choices, the USDA guidelines suggest the following daily food selections:

- Six to 11 servings of breads, cereals, rice, and pasta
- Three to five servings of vegetables
- Two to four servings of fruit
- Two to three servings of dairy products

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

- Two or three servings of meat, fish, poultry, and legumes

Fats, oils, and sweets are at the top of the pyramid, but are not considered an actual food group. They occur in many foods from other groups and should only be used sparingly. The USDA says only about 30% of daily calories should come from fat.

Calcium requirements are particularly important for teens, yet studies show that about 60% of teenage boys and more than 85% of teenage girls fail to get the recommended daily allowance of calcium. Calcium not only helps strengthen bones and make for healthier teeth, it also is important in the teen years to prevent future **osteoporosis**, a painful condition that causes weakened, less dense bones in later adult years. Teens should consume 1,200–1,500 mg of calcium per day. Some excellent sources of calcium include:

- lowfat milk: 300 mg per cup
- white beans: 115 mg per 0.5 cup
- lowfat yogurt: 300 mg per 8 oz
- orange: 40–50 mg per medium-sized orange

Iron requirements are also very important for adolescent health and growth. Teens need 12–15 mg of iron per day. A variety of iron sources come from each food group. Some include:

- peanut butter
- whole grain bread
- spinach
- green beans and lima beans
- beef, poultry, or fish
- strawberries

For both calcium and iron, female teens need the higher recommended amount per day in order to build strong bone and muscle that will prevent against osteoporosis and other conditions associated with post-menopausal women. Teen males need at least the minimum requirement.

Preparations

Getting teenagers to eat the right foods is easier if they have begun good eating habits at a young age and if they are offered a variety of healthy foods. Many books, magazines, and web sites offer tips on making healthy foods interesting. Many of these resources are geared to teens and include recipes. Some selections for each food group include:

- Breads, cereals, and pastas include whole grain breads, bagels, unsweetened cereals, rice, whole grain crackers, cornbread, English muffins, and rice cakes.
- Vegetable servings can come from cooked or raw vegetables such as asparagus, beets, broccoli, carrots, corn, green and red peppers, green beans, kale, peas, pumpkin, squash, sweet potato, tomato, zucchini, or vegetable juice.
- Good fruit choices include such whole fruits as apples, applesauce, bananas, cantaloupe, apricots, peaches, fruit cocktail, plums, grapefruit, kiwi, nectarines, strawberries, and watermelon.
- In addition to milk, low-fat yogurts and cheeses are good dairy sources, as are low-fat cottage cheese, custard, ice milk, and occasional ice cream servings.
- Meat, fish, poultry, and legumes choices include lean meats, dried beans, peanut butter, shellfish, dried peas, lentils, and tofu.

To reduce fat in a teen's diet, parents and their teenage children can switch to low-fat or nonfat milk, remove skin from poultry or trim fat from red meat, reduce use of margarine and butter, use low-fat cooking methods such as baking, broiling, and steaming, and serve foods rich in fiber. Fresh salads can improve fiber in diet, as can adding oat or wheat bran to baked foods. Milk, cheeses, tofu, and salmon are good sources of calcium. Fruit smoothies are good replacements for milk shakes.

It is important that teens eat three meals a day and not skip breakfast. Studies have shown that children and teens that skip breakfast have more trouble concentrating and do not perform as well in school. Skipping breakfast in childhood and adolescence also is related to later health problems such as obesity and **heart disease**.

While the obesity problem in today's youth can be blamed on a number of factors, including larger food portions for adults and children, convenient salty snack foods, and cheap and convenient fast food, much attention has been focused on the nation's schools. There are fewer physical education classes because of more emphasis on academic classes and those gym classes that remain have too much standing around and not enough activities that interest the students, say some experts. School lunches generally offer balanced nutrition, but many schools also offer "snack bars" or vending machines with sodas and sugary, fatty, or salty snacks. Many teens have been choosing these snacks over the prepared school lunches.

To counter the problem in schools, the Healthy Schools Summit was held in October 2002. It consisted of representatives from more than 30 national education, fitness, nutrition, and health organizations, as well as 450 school administrators, government leaders, food service directors, counselors, dietitians, nurses,

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

and health and fitness teachers. Since that time, many school districts around the country have been working to improve their physical education programs and to remove or change the selections in vending machines and snack bars on school campuses. Educating teens and helping them choose healthy alternatives from home, school, or away from campus can help solve the problem as well.

At home, parents also choose convenient snack and fast foods because often, both parents work long hours. Along with bigger portions and increased time spent in front of the television instead of out being physically active, today's youth are becoming obese. They are receiving and growing accustomed to less nutritional food choices. Many experts say that getting teens up off the couch and stocking healthy snack choices helps. Also, many sources can help parents find healthier alternatives to fast food meals for their families. Suggestions include cooking meals on weekends and freezing them for busy weekdays, and looking for cookbooks or online sources of quick and healthy recipes. Simply cooking with less fat by using cooking sprays and baking, roasting, or poaching methods instead of frying helps teens and adults. Also, offering teens healthy snacks to last them until mealtime will keep them from reaching for poor snack choices and make them less likely to overeat at the evening meal.

Teens who are very active and participate in organized sports need a particularly healthy diet. Many teens hear of ideas such as loading up on carbohydrates or proteins to train for sports, often the night before a competition. In reality, the best training is to stick to the Food Pyramid, say nutrition experts. Athletic teens may eat extra complex carbohydrates, such as whole grain rice, pasta, bread, and cereal. Some extra protein is good to help build strong muscles, but eating too much of just one food group, rather than eating a balanced diet is not recommended for athletes or anyone else. An active male teen needs approximately 2,800 calories per day. They should eat the higher suggested number of servings in each food group. Active female teens require 2,200 calories per day. They should eat the average number of suggested servings per food group. Teens that are not as active and are overweight should eat the lower number of suggested servings per food group and cut back on their daily ingestion of fats, oils, and sugars.

While all teens need to drink plenty of water, those who participate in sports need to drink even more. Some experts say an easy formula to remember is one cup of fluid for every one-half hour of physical activity. Another telltale sign of thirst is the color of a teen's urine. If a teen's urine is clear or the color of pale lemonade, he/she is drinking enough fluids. Dark urine the color of apple juice indicates too little hydration and the teen is in danger of dehydration or heatstroke.

For a variety of reasons, some teenagers follow vegetarian diets. Some people are concerned that a vegetarian diet is harmful for children and teens, but generally, if the teen still follows the recommended Food Guide Pyramid and makes good food choices, a vegetarian diet can be healthy. About 2% of children ages six to 17 never eat meat, fish, or poultry and a survey in early 2003 found that vegetarian adolescents drank fewer sodas and ate less fast food than non-vegetarian teens. Vegetarian teens may need vitamin supplements to make up for some of the vitamins normally obtained in meats or meat products; a physician or professional nutritionist can help determine the proper level of supplement needed.

Precautions

Many teens and their parents have been cautioned not to turn to fad diets for teenage weight problems. Many of the diets and diet products on the market have not been proven by clinical studies as effective in the long term for adults; they certainly have not been proven safe or effective as a solution to weight problems in children and teens. Often, teenagers are more susceptible to claims made about diet plans and parents should help them research these diets or to speak with a physician or other licensed practitioner to determine their effectiveness.

The best solution for obesity is a combination of activity, a balanced diet that follows the USDA guidelines for food groups and portions, and involvement of a physician, dietitian, or other trained professional as needed. Further, adolescents who worry too much about weight and appearance can develop social anxieties and eating disorders such as anorexia and bulimia. Over one third of American teenaged females have used such unhealthy methods as self-induced **vomiting**, laxative abuse, diet pills, and water pills to control their weight.

Eating disorders

Anorexia usually occurs in teenage girls and young women who have a greater than normal fear of being fat. People with anorexia hardly eat at all, and they obsess over the food they do eat. A teenage girl with anorexia might weigh every bit of food she eats, compulsively count all calories, or **exercise** to the extreme to work off calories she has consumed. The difference between anorexia and normal dieting is the serious compulsion with weight loss and the desire to go beyond being fit and trim to being as

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

thin as possible, no matter the cost. Warning signs for anorexia are a weight drop to abut 20% below normal, a teen who denies feeling hungry, excessive exercise, feeling fat, and withdrawal from social activities.

Teens with bulimia binge on food for a few hours, then get rid of it quickly by vomiting or taking laxatives. This binge and purge behavior is more difficult to spot than anorexia, because the teenager may be of average weight. The warning signs for bulimia include frequent excuses to go to the restroom immediately after meals, eating huge amounts of food without gaining weight, and using laxatives or diuretics.

Side effects

Only the fat-soluble (capable of being dissolved in fat or oil) vitamins A, D, K and E have side effects that are potentially, though rarely, toxic (poisonous).

In their book *The Real Vitamin & Mineral Book*, Sheri Lieberman and Nancy Bruning state, "The facts are that only a few vitamins and minerals have any known toxicities, all of which are reversible, with the exception of **vitamin D**. Anything can be harmful if you take enough of it—even pure water. But vitamins and minerals are among the safest substances on earth. The amounts needed to become toxic are enormous." They add that being on medication or having a medical condition can influence vitamin/mineral requirements and indicate that when one's physician is not well-versed in nutrition, it is ideal to have him work with a qualified nutritionist.

With regard to vitamin D, they indicate, "According to several studies, up to 1,000 IU per day of vitamin D appears to be safe. Both the beneficial and adverse effects of exceeding this amount are controversial. Overdosing of vitamin D is irreversible and may be fatal. Symptoms of too much vitamin D are **nausea**, loss of appetite, **headache**, **diarrhea**, **fatigue**, restlessness, and calcification of the soft tissues (insoluble lime salts in tissue) of the lungs and the kidneys, as well as the bones." Vitamin D (400 IU) is usually sold with **vitamin A** (5,000 IU) in a tiny tablet or capsule.

Lieberman and Bruning say that active vitamin A from fish liver oil or synthetic palmitate is stored in the liver; that 15,000 IU would cause problems in infants; but that 100,000 IU of active vitamin A would have to be taken daily for months before any signs of toxicity (state of being poisonous) appear. Vitamin A in the form of beta-carotene can be taken without any risk of toxicity.

At doses of 800–1,200 IU per day, Lieberman/Bruning found no well-documented toxicity of **vitamin E**. At doses of over 1,200 IU per day, adverse effects such as flatulence, diarrhea, nausea, headache, heart palpitations, and fainting have been reported, but were completely reversible when dosage was reduced.

Vitamin K is easily obtained by the body from a healthy diet and deficiencies are rare, especially in children. It is given prophylactically to newborn infants to prevent hemorrhage and before surgery to people with blood-clotting problems. Lieberman/Bruning describe the major effect of too much vitamin K as an **anemia** where red blood cells die more quickly than usual and cannot be replaced by the body.

Eating disorders

If a teen weighs less than 15% of the normal weight for his/her height, he/she may not have enough body fat to keep vital organs functioning. When a person is undernourished the body slows down as if it is starving and blood pressure, pulse rate, and breathing slow. Girls with anorexia often stop having their menstrual cyles. Anorexics can also experience lack energy and concentration, as well as lightheadedness. They become anemic, their bones can become brittle, and they can damage their heart, liver, and kidneys. In the most severe cases, they can suffer malnutrition or even death.

The repeated vomiting of bulimia causes constant stomach **pain**. It also can damage the stomach and kidneys. Acids from the stomach that come up into the mouth when vomiting can cause tooth decay. Teenage girls with bulimia also may stop having menstrual cycles. Constant vomiting may also cause bulimics to lose too much of a mineral called **potassium**, which can lead to heart problems and even death.

Research and general acceptance

The American Medical Association (AMA) has based many of its food choices on the Dietary Guidelines for Americans, which were developed through research by the U.S. Department of Agriculture and the U.S. Department of Human Services. Input for the guidelines comes from a number of resources, including national surveys from the Centers for Disease Control (CDC).

As for teens, accepting the importance of nutrition is another story. A 2000 report from the CDC showed that many teens know the basics of healthy eating but few actually follow the recommendations. They simply prefer unhealthy foods most of the time. In focus groups, some teens in the eighth and ninth grades said they would eat healthy foods right before participating in a sport, but most thought their current behaviors could not affect their health at this time in their lives.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Training and certification

Qualified dieticians and nutritionists may have a bachelor's, master's or a doctoral degrees in nutrition and dietetics from an accredited college. They also are required to constantly update their knowledge with continuing education. Through the American Dietetic Association, these professionals can gain certification in their fields, including a certificate of training in childhood and adolescent weight management. Pediatricians obtain M.D. or D.O. degrees and some specialize in childhood diseases and treatment. In the field of alternative medicine, parents may choose to seek treatment from naturopaths and homeopaths.

Resources

PERIODICALS

Berler, Ron. "The Problem is Big: More Kids than Ever are Overweight. We'll Tell You About the Crisis, Offer Some Solutions, and Explain Why Controlling Your Weight Can Make You a Better Athlete." *Sports Illustrated for Kids*(October 1, 2003):60.

"Food Insecurity." *Pediatrics*(February 2003):357–358.

"Kids Don't Think Obesity is a Health Problem." *Nutrition Today*(July-August 2003): 115–116.

Perry, Cheryl L, et al. "Adolescent Vegetarians: How Well do Their Dietary Patterns Meet the Healthy People 2010 Objectives?." *American Academy of Child and Adolescent Psychiatry*(February 2003): 252–253.

ORGANIZATIONS

The American Academy of Pediatrics. 141 Northwest Point Boulevard, Elk Grove Village, IL 60007-1098. (888) 227-1770. http://www.aap.org/family.

International Food Information Council. 1100 Connecticut Avenue, NW, Suite 430, Washington, DC, 20036. (202) 296-6540. http://www.ific.org.

KidsHealth/Nemours Foundation. 4600 Touchton Road East, Building 200, Suite 500, Jacksonville, FL 32246. http://www.kidshealth.org/teen/.

National Eating Disorders Association. 603 Stewart Street, Suite 803, Seattle, WA 98101. (800)931-2237. http://www.nationaleatingdisorders.org.

U.S. Department of Agriculture and U.S. Department of Health and Human Services. (888)878-3256. http://www.usda.gov/FoodAndNutrition.

OTHER

"BMI For Children and Teens." National Center for Chronic Disease Prevention and Health Promotion. [cited June 18, 2004]. http://www.cdc.gov/nccdphp/dnpa/bmi/bmi-for-age.htm.

"Eating Disorders: Anorexia and Builimia." TeenHealth/Nemours Foundation. [cited June 18, 2004]. http://www.kidshealth.org.

"Healthy Weight, Physical Activity, and Nutrition: Focus Group Research With African American, Mexican American and White Youth. Executive Summary." Centers for Disease Control. http://www.cdc.gov.

Teresa G. Odle

Teeth clenching *see* **Bruxism**

Teething problems

Definition

Teething is the eruption of the primary set of teeth (baby teeth) through the gums.

Description

Humans are born with two sets of teeth under the gums. Twenty of these are primary, or baby teeth. Occasionally a child is born with some primary teeth already visible, but more commonly, they begin to erupt around the middle of the first year. The timing of eruption is quite variable, but tends to be similar among members of the same family. Generally, all 20 primary teeth have come in by two and a half years of age. Lower teeth usually come in before their upper counterparts. Incisors often erupt first (centrals, then laterals), followed by first molars, canines, and then two-year molars. An early or late pattern of getting baby teeth will sometimes correspond with a similar pattern of losing the baby teeth and getting the permanent teeth. Issues of spacing and orientation of these first teeth does not necessarily indicate that there will be a problem with the permanent teeth. Gaps and crookedness will often resolve.

Causes and symptoms

Many symptoms of teething are nonspecific, and can occur for weeks or even months before the teeth actually appear. The teething child may be more irritable, particularly at night. Drooling is likely to become heavier when teeth are coming through, which can also cause the stools to become looser. The excess saliva may cause a rash around the mouth and chin, and produce coughing. Some children will run a low-grade fever, typically about 101°F (38.3°C). Commonly the baby will chew on fingers or other objects to relieve the discomfort. This may also include biting during nursing. The areas where teeth are coming through may appear swollen and red. Sucking can be painful for some babies, who may find nursing uncomfortable at the height of teething.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Caries—Cavities in the teeth.

Eruption—Emergence of teeth through the gums.

Fluoride—A mineral compound, taken orally or topically, used to strengthen teeth.

Occasionally, a small, dark blue area will form on the gums where a tooth is about to emerge. This is the result of a small amount of bleeding beneath the surface of the gums, and is not a cause for concern. It will generally resolve without any special treatment, but cold compresses may be used for comfort and to reduce swelling.

Babies may sail through teething with very little apparent discomfort, or may particularly struggle with certain circumstances. Sometimes the first teeth to erupt seem the most bothersome. Others find that it is the large molars which cause the most problem, or groups of teeth coming in simultaneously.

Diagnosis

Swollen gums combined with irritability are good clues to teething **pain**, but serious or long lasting symptoms warrant a visit to the health care provider. If the baby has a **fever** over 101 °F (38.3°C), teething is unlikely to be the cause. Even lower fevers that persist for three days or more should prompt a call to ask whether the baby needs to be seen. Teething is not usually associated with nasal discharge. Although babies that are cutting teeth sometimes pull at their ears, a combination of ear pulling, cold symptoms, and increased nighttime fussing could indicate an **ear infection**. If the child seems to be getting worse or there is any doubt that the symptoms are attributable to teething, professional advice should be sought.

Treatment

Pressure on the areas where teeth are coming through can provide comfort for teething babies. Some babies appear to get relief from a gentle gum massage, or they may enjoy chewing on different textures of teething toys. Some types can be chilled or frozen, which can numb the tender gums a little. A clean, damp washcloth placed in the freezer is an inexpensive substitute for a freezable toy and may be dampened with **chamomile** tea. Chilled foods or drinks can also do the trick, but do not use items that could become choking hazards.

Drool **rashes** are treated by keeping the affected area as free from saliva as possible, and using a mild skin cream. A diaper or wash cloth placed under the crib sheet where the baby's head rests will help to absorb the excess drool and keep the face from being as wet.

Be sure to take care of primary teeth as they come in. A piece of moist gauze is an effective cleanser for baby's first teeth. To prevent dental caries, avoid letting children sleep with a bottle of anything but water. Milk and juice can pool in the mouth, coating the teeth in sugar, and result in decay. Sticky foods and other processed sugars also put teeth at higher risk for damage. A toothbrush will be a more effective cleaner than gauze once the molars come in, and can be used with plain water. Children who aren't yet able to spit out toothpaste residue can get an overdose of fluoride from swallowing fluoridated toothpaste.

Homeopathic treatment

Homeopathic tablets and gels, typically combination homeopathic remedies, are available for teething pain. They are nontoxic, and some find them invaluable in treating teething pain. Individual homeopathic remedies are also available, based on the specific symptoms the baby is having. Consult a practitioner for assistance with the correct remedy and dose.

Herbal treatment

Slippery elm powder and infusion of German chamomile can be made into a paste to be applied to swollen gums. Some babies have also been permitted to teethe on peeled root of marsh mallow (no relation to the confection) to soothe inflammation. Chamomile tea in double strength can be very soothing, especially at night.

Allopathic treatment

Acetaminophen (Tylenol) or ibuprofen (Motrin, Advil) can be given to alleviate the swelling and discomfort of teething, particularly at night to allow less interruption of sleep. A health care provider can outline the appropriate dose and frequency. Topical gels with anesthetic ingredients are available, but they work only for a brief time and occasionally cause allergic reactions. They also cause numbness which may be unpleasant to the baby.

Expected results

Teething is an experience that every baby goes through, either with periodic discomfort, or none at

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

all. Fortunately, once all the primary teeth come in, it is over.

Prevention

Teething pain cannot be completely prevented, but parental attentiveness to comfort measures can help the baby get through it with less distress.

Resources

BOOKS

Eisenberg, Arlene, Heidi Murkoff and Sandee Hathaway. *What to Expect the First Year*. New York: Workman Publishing, 1989.

Sears, William and Martha Sears. *The Baby Book*. Boston: Little, Brown and Company, 1993.

OTHER

Greene, Alan. *Dr. Greene's HouseCalls: Dealing with teething pain*. http://drgreene.com/990703.asp (1999).

Judith Turner

Temporomandibular joint syndrome

Definition

Temporomandibular joint syndrome (TMJ) is the name given to a group of symptoms that cause **pain** in the head, face, and jaw. The symptoms include headaches, soreness in the chewing muscles, and clicking or stiffness of the joints.

Description

TMJ syndrome, which is also sometimes called TMJ disorder, results from pressure on the facial nerves due to muscle tension or abnormalities of the bones in the area of the hinge joint between the lower jaw and the temporal bone. This hinge joint is called the temporomandibular joint. There are two temporomandibular joints, one on each side of the skull just in front of the ear. The temporal bone is the name of the section of the skull bones to which the jawbone (the mandible) is connected. The jawbone is held in place by a combination of ligaments, tendons, and muscles. The temporomandibular joint also contains a piece of cartilage called a disc, which keeps the temporal bone and the jawbone from rubbing against each other. The jaw pivots at the joint area in front of the ear. The pivoting motion of the jaw is complicated because it can move downward and from side to side as well as forward. Anything that causes a change in shape or functioning of the temporomandibular joint will cause pain and other symptoms.

Causes and symptoms

TMJ syndrome has several possible physical causes:

- Muscle tension. Muscle tightness in the temporomandibular joint usually results from overuse of muscles, which is itself often associated with psychological stress and clenching or grinding of the teeth (bruxism).
- Injury. A direct blow to the jaw or the side of the head can result in bone fracture, soft tissue bruising, or a dislocation of the temporomandibular joint itself.
- Arthritis. Both osteoarthritis and rheumatoid arthritis can cause TMJ.
- Internal derangement. With this condition, the cartilage disk lies in front of its proper position. In most cases of internal derangement, the disc moves in and out of its correct location, making a clicking or popping noise as it moves. In a few cases, the disc is permanently out of position, and the patient's range of motion in the jaw is limited.
- Hypermobility. In this case, the ligaments that hold the jaw in place are too loose and the jaw tends to slip out of its socket.
- Birth abnormalities. These are the least frequent causes of TMJ but do occur in a minority of patients. In some cases, the top of the jawbone is too small; in others, the top of the jawbone outgrows the lower part.
- Oral habits. Some dentists think that such habits as wide yawning, lip or tongue biting, or mouth breathing can contribute to TMJ by putting the jaw in an abnormal position for long periods of time.
- Dental work. Some people develop TMJ following dental work that requires the dentist to hold the patient's jaw open wide for extended periods of time. Other patients develop TMJ following removal of the wisdom teeth.

In addition to the physical causes of TMJ, dentists are increasingly recognizing the importance of psychosocial factors in the disorder. One important factor is the patient's concept of pain itself. People who are already suffering from **depression** or an **anxiety** disorder, people who have little social support in their lives, and those who feel that they have little control over their lives are at greater risk of developing chronic pain syndromes, including TMJ.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

In many cases TMJ results from a combination of psychological, anatomical, and functional factors rather than a single abnormality.

The symptoms of TMJ depend in part on its cause or causes. The most common symptoms are facial pain in front of the ears, headaches, sore jaw muscles, a clicking sound when chewing, a grating sensation when opening and closing the mouth, and temporary locking of the jaw. Some patients also report a sensation of buzzing or ringing in the ears. Usually, the temporomandibular joint itself is not painful. Most cases of TMJ are seen in women between 20–50 years of age.

Diagnosis

TMJ syndrome is most frequently diagnosed by dentists. The dentist can often diagnose TMJ based on physical examination of the patient's face and jaw. The examination might include pressing on (palpating) the jaw muscles for soreness or asking the patient to open and close the jaw in order to check for misalignment of the teeth in the upper and lower jaw. This condition is called malocclusion. The dentist might also gently move the patient's jaw in order to check for loose ligaments.

Imaging studies are not usually necessary to diagnose TMJ. In most cases, x rays and MRI scans of the temporomandibular joint will be normal. Consequently, these two tests are not commonly used to diagnose TMJ. If the dentist suspects that the patient has internal derangement of the disc, a technique called arthrography can be used to make the diagnosis. In an arthrogram, a special dye is injected into the joint, which is then x-rayed. Arthrography can be used to evaluate the movement of the jaw and the disc as well as size and shape, and to evaluate the effectiveness of treatment for TMJ.

Another aid to diagnosing TMJ is a new questionnaire designed to discriminate between facial pain related to TMJ and myogenic facial pain, a chronic condition that is caused by trigger points in the muscles of the face and neck. The McGill Pain Questionnaire has been reported to have a high degree of reliability in distinguishing between patients with TMJ and patients with myogenic facial pain.

Treatment

In many cases, the cause of pain in the TMJ area is temporary and disappears without treatment. About 80% of patients with TMJ improve in six months without medications or physical treatments.

Biofeedback, which teaches an individual to control muscle tension and any associated pain through thought and visualization techniques, is also a treatment option for TMJ. In biofeedback treatments, sensors placed on the surface of the jaw are connected to a special machine that allows the patient and healthcare professional to monitor a visual and/or audible readout of the level of tension in the jaw muscles. Through **relaxation** and visualization exercises, patients learn to relieve the tension and can actually see or hear the results of their efforts instantly through the sensor readout on the biofeedback equipment. Once the technique is learned and patients are able to recognize and differentiate between the feelings of muscle tension and muscle relaxation, the electromyographic biofeedback equipment itself is no longer needed and patients have a powerful, portable, and self-administered treatment tool to deal with pain and tension.

Stress management and relaxation techniques may be useful in breaking the habit of jaw clenching and teeth grinding. Tight jaw muscles are often relaxed by applying warm compresses to the sides of the face. **Massage therapy** and deep tissue realignment can also assist in releasing the clenching pattern. Extra **calcium** and **magnesium** can also help relax jaw muscles. Other treatments include hypnosis, cognitive-behavioral therapy, electrotherapy, **exercise**, and educating patients to change their perception of pain.

Acupuncture may relieve the jaw tension associated with TMJ. A British study concluded that acupuncture was safe and effective for treating TMJ. The study involved 60 patients and found that 85% reported benefits of acupuncture, with an average reduction of pain of 75%. Results of the study were published in the January 2006 issue of *Acupuncture in Medicine*.

Allopathic treatment

Allopathic practitioners are increasingly recommending more conservative treatments for TMJ, on the grounds that the majority of patients can be successfully treated with noninvasive, reversible approaches. These include patient education and eating softer foods as well as medication and the use of bite plates.

Patients with TMJ can use muscle relaxants if their symptoms are related to muscle tension. Some patients may take aspirin or nonsteroidal anti-inflammatory drugs (NSAIDs) for minor discomfort. If the TMJ is related to **rheumatoid arthritis**, it may be treated with corticosteroids, methotrexate (MTX, Rheumatrex) or gold **sodium** (Myochrysine).

Patients who have difficulty with **bruxism** may be treated with splints. A plastic splint, called a

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Arthrography—An imaging technique that is sometimes used to evaluate TMJ associated with internal derangement.

Bruxism—Habitual clenching and grinding of the teeth, especially during sleep.

Electromyographic biofeedback—A method for relieving jaw tightness by monitoring the patient's attempts to relax the muscle while the patient watches a gauge. The patient gradually learns to control the degree of muscle relaxation.

Internal derangement—A condition in which the cartilage disc in the temporomandibular joint lies in front of its proper position.

Malocclusion—The misalignment of opposing teeth in the upper and lower jaws.

Mandible—The medical name for the lower jaw.

Osteoarthritis—A type of arthritis marked by chronic degeneration of the cartilage of the joints, leading to pain and sometimes loss of function.

Rheumatoid arthritis—A chronic autoimmune disorder marked by inflammation and deformity of the affected joints.

Temporal bones—The compound bones that form the left and right sides of the skull.

Transcutaneous electrical nerve stimulation (TENS)—A method for relieving the muscle pain of TMJ by stimulating nerve endings that do not transmit pain. It is thought that this stimulation blocks impulses from nerve endings that do transmit pain.

nightguard, is placed over the teeth before going to bed. Splints can also be used to treat some cases of internal derangement by holding the jaw forward and keeping the disc in place until the ligaments tighten. The splint is adjusted over a period of two to four months.

TMJ can also be treated with ultrasound, stretching exercises, transcutaneous electrical nerve stimulation (TENS), stress management techniques, or friction massage.

Surgery is ordinarily used only to treat TMJ caused by birth deformities or certain forms of internal derangement caused by misshapen discs. Artificial temporomandibular joint implants are sometimes used to replace the jaw in patients to decrease pain and improve jaw function.

Expected results

The prognosis for recovery from TMJ is excellent for almost all patients. Most patients do not need any form of long-term treatment. Surgical procedures to treat TMJ are quite successful. In the case of patients with TMJ caused by arthritis or infectious diseases, the progression of the arthritis or the success of eliminating infectious agents determines whether TMJ can be eliminated.

Resources

BOOKS

Laskin, Daniel M., et al. *Temporomandibular Disorders: An Evidence-Based Approach to Diagnosis and Treatment.* Hanover Park, IL: Quintessence, 2006.

Okeson, Jeffrey P. *Management of Temporomandibular Disorders and Occlusion.* Burlington, MA: Mosby, 2007.

PERIODICALS

Arabshahi, Bita, et al. "Reactive Arthritis of the Temporomadibular Joints and Cervical Spine in a Child." *Pediatric Rheumatology* (April 4, 2007): 4.

Buescher, Jennifer J. "Temporomandibular Joint Disorders." *American Family Physician* (November 15, 2007): 1477.

London, Robert T. "Stress-Related Temporomandibular Dysfunction." *Clinical Psychiatry News* (October 2006): 60.

Medlicott, Marega S., and Susan R. Harris. "A Systematic Review of the Effectiveness of Exercise, Manual Therapy, Electrotherapy, Relaxation Training, and Biofeedback in the Management of Temporomandibular Disorder." *Physical Therapy* (July 2006): 955(19).

Rosted, Palle, et al. "The Use of Acupuncture in the Treatment of Temporomandibular Dysfunction: An Audit." *Acupuncture in Medicine* (January 2006): 16(7).

Shapira, Ira. "The National Heart, Lung, and Blood Institute Considers the Cardiac and Sleep Consequences of Temporomandibular Disorders." *CRANIO: The Journal of Craniomandibular Practice* (April 2007): 77(2).

ORGANIZATIONS

American Dental Association, 211 East Chicago Ave., Chicago, IL, 60611, (312) 440-2500, http://www.ada.org.

Canadian Dental Association, 1815 Alta Vista Dr., Ottawa, ON, K1G 3Y6, Canada, (613) 523-1770, http://www.cda-adc.ca.

National Institute of Dental and Craniofacial Research (NIDCR), National Institutes of Health, Bethesda, MD, 20892-2190, (301) 496-4261, http://www.nidr.nih.gov.

TMJ Association, PO Box 26770, Milwaukee, WI, 53226-0770, (262) 432-0350, http://www.tmj.org.

Paula Ford-Martin
Ken R. Wells

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

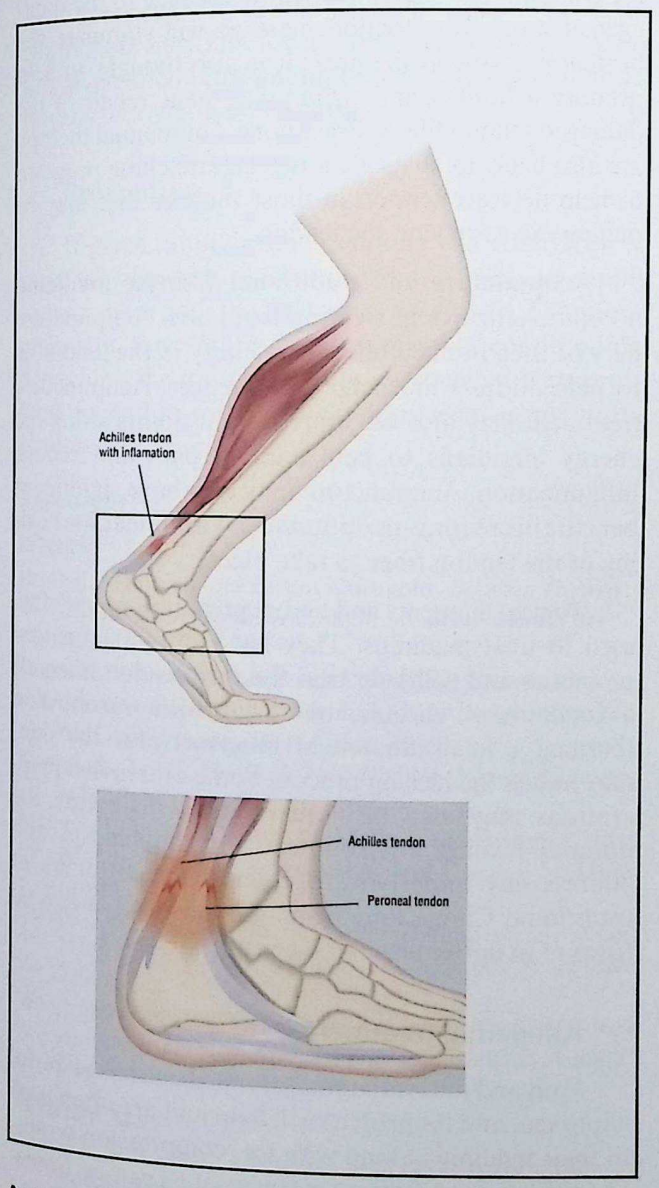
Tendinitis

Definition

Tendinitis is a condition caused by the tearing of tendon fibers and subsequent inflammation in the tendon. Tendons are the strong connective tissue that connect muscle to bone.

Description

When a muscle contracts, it pulls on the tendon, which is composed of tissue that cannot stretch. The tendon then transmits that pulling force to the bone and moves the bone, producing movement. Tendinitis usually results from excessive repeated demands placed on the tendon by the muscle. Tendinitis is not usually caused by a sudden injury; it is more commonly a result of a long period of overuse. Tendinitis occurs frequently with active individuals and those whose occupational tasks require repetitive motion.



Anatomical view of an inflamed tendon and close up of the achilles. *(Illustration by GGS Information Services, Inc. Cengage Learning, Gale)*

Tendons that commonly become inflamed include:

- tendons of the hand
- tendons of the upper arm that affect the shoulder
- tendons of the forearm at the elbow
- the tendon of the quadriceps muscle group at the knee
- the Achilles tendon at the ankle

Causes and symptoms

Repeated overuse of the tendon will cause small tears to develop in the tendon fibers. As a result, the body will initiate the injury repair process in the area and lay down scar tissue. Inflammation will develop in the area as part of the injury repair process. Inflammation increases the blood supply, bringing nutrients to the damaged tissues along with infection-fighting agents. The result is swelling, tenderness, **pain**, and heat. Redness may occur if the injury is close to the skin. Since many cases of tendinitis result from chronic inflammatory conditions that develop from long periods of overuse, the inflammatory process is not as exaggerated as with an acute injury. Therefore swelling, heat, and redness are not always visible in a tendinitis complaint because the inflammation is really at a low level.

Recent research has found that tendinitis sometimes develops as a side effect of treatment with quinolones, which are a group of antibiotics frequently used to treat bacterial **infections**. The tendon most likely to be affected by these drugs is the Achilles tendon, and the tendinitis usually develops within the first few weeks of antibiotic treatment.

Diagnosis

Some common tendon injuries are superficial and easy to identify. These include lateral epicondylitis (commonly referred to as **tennis elbow**) and Achilles' tendinitis, which affects the tendon just above the heel of the foot. While tennis elbow occurs more often in workers than in athletes (in spite of its name), tendinitis affecting the Achilles tendon is almost always related to sports. Tendinitis in the shoulder area is

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Moxibustion—A treatment where crushed leaves of the mugwort, or moxa, plant (*Artemisia vulgaris*) are shaped into a cigar-like form that is lit and held directly over the skin of the area being treated.

Palpation—A diagnostic technique in which the organ or tissue is examined or explored by pressing lightly on the skin above the injury.

Quinolones—A group of antibiotics, often used to treat bacterial infections, that sometimes cause tendinitis.

Tendon—A band or cord of thick white fibrous tissue that connects a muscle to bone.

almost always found in workers who frequently carry heavy loads as part of their job.

Tendinitis is most often diagnosed by evaluating factors in the patient's history that indicate muscular overuse. Tendinitis will often develop when an individual suddenly increases his or her level of activity without adequate training or conditioning. This occurs frequently in occupational and recreational settings.

In addition to evaluating factors in the patient's history that are likely to lead to tendinitis, the clinician may use several physical examination procedures. Most tendons are near the surface of the skin and therefore can be easily palpated (touched or pressed in order to make a diagnosis), especially by practitioners of manual therapy who have highly developed palpation skills. Pressure placed directly on these tendons is likely to cause discomfort. In addition, the practitioner may ask the patient to contract the muscle attached to the tendon, usually against resistance, to see if this causes pain.

Treatment

Ice is often advocated for tendinitis when the tendon is in an aggravated state. Ice is particularly useful for limiting inflammation in the tendon. Ice may be applied by placing a bag of ice on the skin. It may also be applied directly to the skin using an ice cube wrapped in a paper towel or ice frozen in a paper cup with the top portion of the cup peeled away to expose the ice. An ice massage—rubbing the skin and underlying tissue with ice in a slow, circular or back-and-forth motion—will cool the injured area quickly. If ice is applied to the skin without a barrier between the ice and the skin, the patient should be carefully monitored so that **frostbite** does not occur. Generally no more than about five minutes of treatment in one area is necessary with ice massage.

Compression wraps, such as elastic bandages, may be used to help provide mechanical support for the tendon during active movement. These compression wraps can be helpful, but they may also slow the healing process in the tendon if left on for long periods because they decrease blood supply in the area.

Various types of soft tissue manipulation are very effective for treating tendinitis and may be employed by a variety of practitioners, including chiropractors, massage therapists, physical therapists, and osteopaths. One of the most common methods of soft tissue treatment for tendinitis is a vigorous friction massage to the damaged tendon. This friction massage will stimulate the healing of tissue in the area. It is also thought to help produce a healthy and strong scar-tissue repair of the damaged tendon fibers. Practitioners of manual therapy are also likely to advocate a regular stretching program to help decrease tension in those muscles that may be pulling excessively on the tendon.

Acupuncture and **traditional Chinese medicine** are quite effective in treating tendinitis. Acupuncture may be used in the immediate vicinity of the tendinitis to help address muscular dysfunction. Acupuncture treatment may also use more distant points along the energy meridians to help address pain and reduce inflammation. Acupuncture may also have significant benefits in creating an optimum environment for healing of the tendon fiber to take place.

Topical liniments and herbal preparations are often used to treat tendinitis. They have anti-inflammatory properties and will help heal the torn tendon fibers. If a condition is chronic, treatment with **moxibustion** (burning a small amount of **mugwort** near the skin) may hasten the healing process. Some oral herbal preparations may also be used in order to create the optimal healing environment for the tendon and address any underlying problems. Practitioners of traditional Chinese medicine may also use a special form of **acupressure** massage called Tui-Na.

Allopathic treatment

Pain and anti-inflammatory medications (aspirin, naproxen, and ibuprofen) will help and are often used to treat tendinitis along with ice, compression wraps, and activity modification, as mentioned earlier. Sometimes the inflammation lingers and requires additional treatment. Injections of anti-inflammatory medication, such as cortisone, often relieve chronic tendinitis,

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

but they should be used with caution. Research has indicated that cortisone may have detrimental effects on the healing of connective tissues and may, in fact, weaken them in the long run. This would make the person susceptible to a greater injury in the future.

If tendinitis is persistent and unresponsive to non-surgical treatment, the afflicted portion of tendon can be removed through surgery. Surgery is also performed to remove the **calcium** buildup that comes with persistent tendinitis.

Expected results

Generally, tendinitis will heal if the activity that provokes it is stopped. Various kinds of treatments may accelerate the healing process. Some tendinitis complaints may last for a long time because they are not given adequate healing time before the individual returns to a vigorous level of activity.

Prevention

If given enough time, tendons will strengthen to meet the demands placed on them. The blood supply to tendons is poor, so tendons grow slowly. Therefore, adequate time is required for good conditioning. Stretching the muscles that are associated with problematic tendon will also help decrease overuse on the tendon.

Resources

BOOKS

Beinfield, Harriet, and Efrem Korngold. *Between Heaven and Earth: A Guide to Chinese Medicine*. New York: Ballantine, 1991.

Hammer, Warren I. *Functional Soft Tissue Examination and Treatment by Manual Methods: New Perspectives*. 2nd ed. Gaithersburg, MD: Aspen, 1999.

Kaptchuk, Ted J. *The Web That Has No Weaver*. Chicago: NTC Publishing Group, 1999.

Malone, Terry R., Thomas G. McPoil, and Arthur J. Nitz, eds. *Orthopedic and Sports Physical Therapy*. St. Louis: Mosby, 1997.

Pelletier, Kenneth R. *The Best Alternative Medicine: What Works? What Does Not?* New York: Simon & Schuster, 2000.

Weintraub, William. *Tendon and Ligament Healing: A New Approach Through Manual Therapy*. Berkeley, Calif.: North Atlantic Books, 1999.

PERIODICALS

Fenwick, S. A., B. L. Hazleman, and G. P. Riley. "The Vasculature and Its Role in the Damaged and Healing Tendon." *Arthritis Research* 4 (March 2002): 252-260.

Frost, P., J. P. Bonde, S. Mikkelsen, et al. "Risk of Shoulder Tendinitis in Relation to Shoulder Loads in Monotonous Repetitive Work." *American Journal of Industrial Medicine* 41 (January 2002): 11-18.

Oliphant, C. M., and G. M. Green. "Quinolones: A Comprehensive Review." *American Family Physician* 65 (February 2002): 455-464.

Schepsis, A. A., H. Jones, and A. L. Haas. "Achilles Tendon Disorders in Athletes." *American Journal of Sports Medicine* 30 (March-April 2002): 287-305.

Stahlmann, R. "Clinical Toxicological Aspects of Fluoroquinolones." *Toxicology Letter* 127 (February 28, 2002): 269-277.

Whitney Lowe
Rebecca J. Frey, PhD

Tennis elbow

Definition

Tennis elbow is an inflammation of several structures of the elbow. These include muscles, tendons, bursa, periosteum, and epicondyle (bony projections on the outside and inside of the elbow, where muscles of the forearm attach to the bone of the upper arm). This condition is also called epicondylitis, lateral epicondylitis, medial epicondylitis, or golfer's elbow, where **pain** is present at the inside epicondyle.

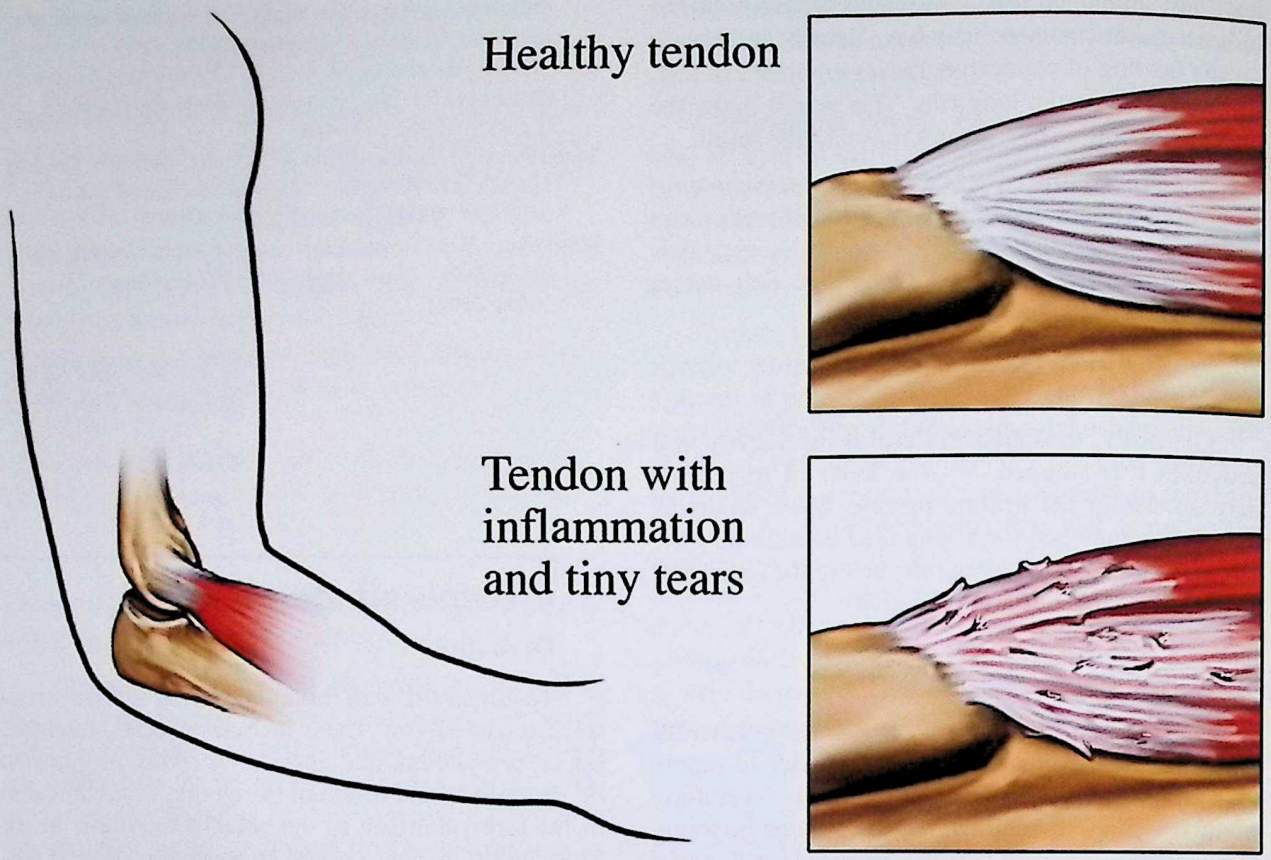
Description

The classic tennis elbow is caused by repeated forceful contractions of wrist muscles located on the outer forearm. The **stress**, created at a common muscle origin, causes microscopic tears leading to inflammation. This is a relatively small surface area located at the outer portion of the elbow (the lateral epicondyle). Medial tennis elbow, or medial epicondylitis, is caused by forceful, repetitive contractions from muscles located on the inside of the forearm. All of the forearm muscles are involved in tennis serves, when combined motions of the elbow and wrist are employed. This overuse injury is common between ages 20–40.

People at risk for tennis elbow are those in occupations that require strenuous or repetitive forearm movement. Such jobs include mechanics or carpentry. Sport activities that require individuals to twist the hand, wrist, and forearm, such as tennis, throwing a ball, bowling, golfing, and skiing, can cause tennis elbow. Individuals in poor physical condition, who are exposed to repetitive wrist and forearm movements for long periods of time, may also be prone to tennis elbow.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri



Regular tennis elbow is caused by repeated forceful contractions of wrist muscles located on the outer forearm. *(© Nucleus Medical Art, Inc. / Alamy)*

Causes and symptoms

Tennis elbow pain originates from a partial tear of the tendon and the attached covering of the bone. It is caused by chronic stress on tissues attaching a group of forearm muscles known as extensor muscles to the elbow area. Individuals experiencing tennis elbow may complain of pain and tenderness over either of the two epicondyles. This pain increases with gripping or rotation of the wrist and forearm. If the condition becomes long-standing and chronic, a decrease in grip strength can develop.

Diagnosis

Diagnosis of tennis elbow includes the individual observation and recall of symptoms, a thorough medical history, and physical examination by a physician. Diagnostic testing is usually not necessary unless there may be evidence of nerve involvement from underlying causes. X rays are usually always negative because the condition is primarily soft tissue in nature, in contrast to a disorder of the bones. However, magnetic resonance imaging (MRI) has been shown to be helpful in diagnosing cases of early tennis elbow because it can detect evidence of swelling and tissue tears in the common extensor muscle group.

Treatment

Heat or ice is helpful in relieving tennis elbow pain. Once acute symptoms have subsided, heat treatments are used to increase blood circulation and promote healing. The physician may recommend physical therapy to apply **diathermy** or ultrasound to the inflamed site. These are two common modalities used to increase the thermal temperature of the tissues in order to address both pain and inflammation. Occasionally, a tennis elbow splint may be useful to help decrease stress on the elbow throughout daily activities. Routine exercises become very important to improve flexibility to all forearm muscles, and will aid in decreasing muscle and tendon tightness that has been creating excessive pull at the common attachment of the epicondyle.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Epicondyle—A projection on the surface of a bone; often an area for muscle and tendon attachment.

Epicondylitis—A painful and sometimes disabling inflammation of the muscle and surrounding tissues of the elbow caused by repeated stress and strain on the forearm near the lateral epicondyle of the humerous (arm bone).

Extensor muscles—A group of muscles in the forearm that serve to lift or extend the wrist and hand. Tennis elbow results from overuse and inflammation of the tendons that attach these muscles to the outside of the elbow.

Periosteum—A fibrous vascular membrane that covers bones.

Shock wave therapy—A method of treating tennis elbow and other musculoskeletal injuries that involves directing bursts of high-pressure sound waves at the affected area.

Massage therapy also has been found to be beneficial if symptoms are mild. Massage techniques are based primarily on increasing circulation to promote efficient reduction of inflammation. Manipulation, **acupuncture**, and **acupressure** have been used as well. Contrast **hydrotherapy** (alternating hot and cold water or compresses, three minutes hot, 30 seconds cold, repeated three times, always ending with cold) applied to the elbow can help bring nutrient-rich blood to the joint and carry away waste products. **Botanical medicine** and **homeopathy** may also be effective therapies for tennis elbow. For example, **cayenne** (*Capsicum frutescens*) ointment or **arnica**, **wintergreen**, or rue oil applied topically may help to increase blood flow to the affected area and speed healing.

Allopathic treatment

The physician may also prescribe nonsteroidal anti-inflammatory drugs (NSAIDS) to reduce inflammation and pain. Injections of cortisone or anesthetics are often used if physical therapy is ineffective. Cortisone reduces inflammation, and anesthetics temporarily relieve pain. Physicians are cautious regarding an excessive number of injections as they have been found to weaken the tendon's integrity. In addition, a significant number of patients experience a temporary increase in pain following corticosteroid injections.

A newer method of treatment for tennis elbow is shock wave therapy, in which pulses of high-pressure sound are directed at the injured part of the tendon. The "shock" refers to the high pressure, which breaks down scar tissue and stimulates the regrowth of blood vessels in healthy tissue. Shock wave therapy sessions take about 20 minutes and have been reported to have a success rate of 80%. Shock wave therapy has very few side effects; one group of German physicians found that temporary reddening of the skin or small **bruises** were the most commonly reported side effects.

Botulinum toxin, or Botox, is also being tried as a treatment for tennis elbow as of late 2003. Although further research needs to be done, Botox appears to relieve pain in chronic tennis elbow by relaxing muscles that have gone into spasm from prolonged inflammation.

Surgery

If conservative methods of treatment fail, surgical release of the tendon at the epicondyle may be a necessary form of treatment. Although surgical intervention is relatively rare in the treatment of tennis elbow, it is completely succesful in about 70% of cases.

Expected results

Tennis elbow is usually curable; however, if symptoms become chronic, it is not uncommon for treatment to continue for three to six months.

Prevention

Until symptoms of pain and inflammation subside, activities requiring repetitive wrist and forearm motion should be avoided. Once pain decreases to the point that return to activity can begin, the playing of such sports as tennis for long periods should not occur until excellent condition returns. Many times, choosing a different size or type of tennis racquet or tool may help. Frequent rest periods are important despite what the wrist and forearm activity may be. Compliance to a stretching and strengthening program is very important in helping prevent recurring symptoms and exacerbation. In some cases, the patient may be advised to change his or her occupation to prevent further injury.

Resources

BOOKS

Hertling, Darlene, and Randolph M. Kessler. *Management of Common Musculoskeletal Disorders: Physical Therapy Principles and Methods*. 2d ed. Philadelphia: J.B. Lippincott Company, 1990.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Norkin, Cynthia C., and Pamela K. Levangie. *Joint Structure and Function: A Comprehensive Analysis.* Philadelphia: F.A. Davis Company, 1992.

PERIODICALS

Altay, T., I. Gunal, and and H. Ozturk. "Local Injection Treatment for Lateral Epicondylitis." *Clinical Orthopedics* 398 (May 2002): 127-130.

Das, D., and N. Maffulli. "Surgical Management of Tennis Elbow." *Journal of Sports Medicine and Physical Fitness* 42 (June 2002): 190-197.

de Seze, M. P., M. de Seze, P. Dehail, et al. "Botulinum Toxin A and Musculoskeletal Pain." [in French] *Annales de réadaptation et de médecine physique* 46 (July 2003): 329–332.

Haake, M., I. R. Boddeker, T. Decker, et al. "Side-Effects of Extracorporeal Shock Wave Therapy (ESWT) in the Treatment of Tennis Elbow." *Archives of Orthopaedic and Trauma Surgery* 122 (May 2002): 222-228.

Mackay, D., A. Rangan, G. Hide, et al. "The Objective Diagnosis of Early Tennis Elbow by Magnetic Resonance Imaging." *Occupational Medicine (London)* 53 (August 2003): 309–312.

Melikyan, E. Y., E. Shahin, J. Miles, and L. C. Bainbridge. "Extracorporeal Shock-Wave Treatment for Tennis Elbow. A Randomised Double-Blind Study." *Journal of Bone and Joint Surgery, British Volume* 85 (August 2003): 852–855.

Rompe, J. D., M. Buch, L. Gerdesmeyer, et al. "Musculoskeletal Shock Wave Therapy— Current Database of Clinical Research." [in German] *Zeitschrift Orthopädische Ihre Grenzgebiet* 140 (May-June 2002): 267-274.

Smith, A. M., J. A. Castle, and D. S. Ruch. "Arthroscopic Resection of the Common Extensor Origin: Anatomic Considerations." *Journal of Shoulder and Elbow Surgery* 12 (July-August 2003): 375–379.

Walther, M., S. Kirschner, A. Koenig, et al. "Biomechanical Evaluation of Braces Used for the Treatment of Epicondylitis." *Journal of Shoulder and Elbow Surgery* 11 (May-June 2002): 265-270.

Wang, A. A., E. Whitaker, D. T. Hutchinson, and D. A. Coleman. "Pain Levels After Injection of Corticosteroid to Hand and Elbow." *American Journal of Orthopedics* 32 (August 2003): 383–385.

ORGANIZATIONS

American College of Occupational and Environmental Medicine (ACOEM). 1114 North Arlington Heights Road, Arlington Heights, IL 60004. (847) 818-1800. www.acoem.org.

American College of Sports Medicine. PO Box 1440, Indianapolis, IN 46206–1440 or 401 W. Michigan St., Indianapolis, IN 46202. (317) 637–9200. Fax: (317) 634–7817. www.acsm.org.

Kathleen D. Wright
Rebecca J. Frey, PhD

Tetanus

Definition

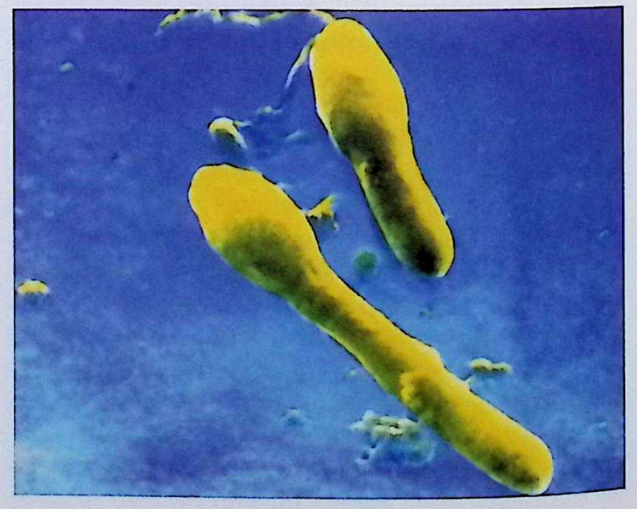
Tetanus is a rare but often fatal disease that affects the central nervous system by causing painful and often violent muscular contractions. The earliest descriptions of the disease can be found in the medical papyri of ancient Egypt. The disease begins when the tetanus bacterium (*Clostridium tetani*) enters the body, usually through a wound or cut that has come in contact with the spores of the bacterium. Tetanus spores are commonly found in soil, dust, and animal manure. Tetanus is a noncommunicable disease, meaning that it cannot be passed directly from one person to another.

Description

Tetanus is uncommon in the United States, with nearly all cases occurring in adults who were not vaccinated as children, or in those who have not had a booster vaccination in 10 years.

In the United States, there are between 50 and 100 reported cases of tetanus a year. About 30% of cases are fatal. Most people who die of tetanus **infections** are over 50 years old.

Tetanus causes convulsive **muscle spasms** and rigidity that can lead to respiratory paralysis and death. It is sometimes called "lockjaw" because one of the most common symptoms is a stiff jaw that cannot be opened. Sometimes tetanus is localized, that is, it affects only the part of the body where the infection



Clostridium tetani, the species of Gram-positive, spore-forming, rod-like bacteria that causes tetanus. *(CNRI / Photo Researchers, Inc.)*

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Adjuvant—A substance added to a vaccine to stimulate a stronger immune response. Aluminum is commonly used as an adjuvant in tetanus vaccines.

Anaerobe—A type of bacterium that does not require oxygen to live. The tetanus bacterium is an anaerobe.

Clostridium—A genus of deadly bacteria that are responsible for tetanus and other serious diseases, including botulism and gangrene from war wounds. It thrives without oxygen.

DTaP—Diphtheria and tetanus toxoids and acellular Pertussis combination vaccine.

DTP—Diphtheria, tetanus, and whole-cell pertussis vaccine.

Lockjaw—Refers to a common name given to the disease taken from its most pervasive symptom.

Td—The abbreviation for tetanus and diptheria vaccine.

Toxin—A poisonous substance, often produced by bacteria, that flows through the body.

began. However, in almost all reported cases, tetanus spreads to the entire body. The incubation period, from the time of the injury until the first symptoms appear, ranges from five days to three weeks. Symptoms usually occur within eight to 12 days. The chance of death is increased when symptoms occur early.

Causes and symptoms

Tetanus is caused by a bacterium called *Clostridium tetani*, whose spores (the dormant form) are found in soil, street dust, and animal feces. The bacteria enter the body through **cuts** and abrasions but will multiply only in an environment that is anaerobic, or oxygen-free. Deep puncture **wounds** and wounds with a lot of dead tissue provide an oxygen-free environment for the bacteria to grow.

As *C. tetani* grows, it excretes a highly poisonous toxin called tetanospasmin into the bloodstream, spreading it the nervous system. The infection is usually transmitted through deep puncture wounds or through cuts or **scratches** that are not cleaned well. Many people associate tetanus with rusty nails and other dirty objects, but any wound can be a source. Less common ways of getting tetanus are animal scratches and **bites**; surgical wounds; dental work; punctures caused by glass, thorns, needles, and splinters; and therapeutic abortion. Rare cases have been reported in people with no known wound or medical condition.

Neonatal tetanus in newborns can be caused by cutting the umbilical cord with an unsterile instrument or by improper care of the umbilical stump. It is less common in developed countries.

Tetanus toxin affects the nerve endings, causing a continuous stimulation of the muscles. Initial symptoms may include restlessness, irritability, a stiff neck, and difficulty swallowing. In about half of all cases, the first symptom is a stiff or "locked" jaw, which prevents patients from opening their mouths or swallowing. This symptom is also called trismus and results in a facial expression called risus sardonicus, which is a Latin phrase meaning "sardonic smile." Trismus is often followed by stiffness of the neck and other muscles throughout the body as well as uncontrollable spasms. Sometimes these convulsions, known as opisthotonos, are severe enough to cause broken bones. Other symptoms of tetanus include loss of appetite and drooling. People with localized tetanus experience **pain** and tingling only at the wound site and spasms in nearby muscles.

In the underdeveloped world, neonatal tetanus accounts for about one-half of tetanus deaths and is related to infection of the umbilical stump in a baby born of an unimmunized mother. In many cases the risk is increased by the mother's giving birth on a floor made of hard-packed soil. Worldwide, 800,000 children die of tetanus each year.

Diagnosis

Tetanus is diagnosed by the clinical symptoms and a medical history that shows no tetanus immunization. Early diagnosis and treatment is crucial for recovery.

In general, the shorter the incubation period, the more severe the disease.

Treatment

As traditional medical treatment revolves around drug therapy, **Traditional Chinese medicine** herbal remedies are the most common alternative treatment for tetanus. Herbs that have sedative effects should be given to reduce the frequency of convulsions, along with herbs to fight the bacteria.

Tetanus and convulsions can be treated with a concoction made from the dried body of a long-noded pit viper, called this drug Qi She in Mandarin. Chan Tui, or **cicada** slough (the skin the cicada sheds) is also helpful. Also helpful are the dried root of the

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Saposhnikovia divaricata, called divaricate saposhnikovia root, and jack-in-the-pulpit tuber, if it is treated so it is not poisonous.

There are several alternative treatments aimed at prevention of the disease.

Allopathic treatment

Tetanus is a life-threatening disease. Patients diagnosed with it are usually hospitalized, usually in an intensive-care ward. Treatment can take several weeks and includes antibiotics to kill the bacteria and shots of antitoxin to neutralize the toxin. It also includes anti-anxiety drugs to control muscle spasms or barbiturates for sedation. In severe cases, patients are placed on an artificial respirator. Recovery can take six weeks or more. After recovery, since the levels of circulating toxin are quite low, the patient must still be adequately immunized against this disease.

Expected results

Full recovery is common in patients who can be kept alive during the most violent portion of the attacks. Yet up to 30% of tetanus victims in the United States die. Early diagnosis and treatment improves the prognosis. Neonatal tetanus has a mortality rate of more than 90%.

Prevention

Castor oil is a natural remedy that can be used to clean out a wound and prevent tetanus. When a wound is sustained, a cotton ball dunked in castor oil should be placed on the wound, and then fixed on the wound with a bandage. Castor oil has tremendous drawing power and can pull out rust and other infectious agents. The dressing should be changed every two hours the first day of treatment and twice a day for the next three days.

Tetanus is easily preventable through vaccination. All children should have a series of five doses of DTaP, a combined vaccine that offers protection against diphtheria, tetanus, and pertussis, before the age of seven. This position is supported by numerous organizations, including the World Health Organization, the Centers for Disease Control and Prevention, the Advisory Committee on Immunization Practices, the Committee on Infectious Diseases of the American Academy of Pediatrics, and the American Academy of Family Physicians. Children in the United States will not be admitted to school without proof of this and other immunizations.

The DTaP (Diptheria, Tetanus, accellular Pertussis) vaccine should be given at ages two months, four months, six months, 15-18 months, and four to six years. DTaP is the preferred vaccine for children up to the age of seven in the United States; it has fewer side effects than DTP and can be used to complete a vaccination schedule begun with DTP. DTaP was first approved by the Food and Drug Administration in September 1996. In December 1996, it was approved for use in infants. Between age 11 and 13, children should have a booster, called Td, for diphtheria and tetanus.

Adults should have a Td booster every 10 years. Statistics from the Centers for Disease Control and Prevention show that fewer than half of Americans aged 60 and older have antibodies against tetanus. The Centers for Disease Control and Prevention suggests adults be revaccinated at mid-decade birthdays (for example, at 45). Adults who have never been vaccinated against tetanus should get a series of three injections of Td over six to 12 months and then follow the 10-year booster shot schedule.

Side effects of the tetanus vaccine are minor: soreness, redness, or swelling at the site of the injection that appear any time from a few hours to two days after the vaccination and disappear in a day or two. Rare but serious side effects that require immediate treatment by a doctor are serious allergic reactions or deep, aching pain and muscle wasting in the upper arms. These symptoms could start from two days to four weeks after the shot and could continue for months.

For those who are averse to immunizations, tetanus immunity can be boosted naturally by taking **vitamin E**, according to a study from Tufts University in Medford, Massachusetts. To get the most benefit, 200 mg should be taken daily.

Keeping wounds and scratches clean is important in preventing infection. Since this organism grows only in the absence of oxygen, the wounds must be adequately cleaned of dead tissue and foreign substances. Run cool water over the wound and wash it with a mild soap. Dry it with a clean cloth or sterile gauze. To help prevent infection, apply an antibiotic cream or ointment and cover the wound with a bandage. Try the castor oil remedy. The longer a wound takes to heal, the greater the chance of infection. Consult a doctor if the wound doesn't heal, if it is red or warm, or if it drains or swells.

If the wounded individual does not have an adequate history of immunization, a doctor may administer a specific antitoxin (human tetanus immune globulin, TIG) to produce rapid levels of circulating antibody. The antitoxin is given at the same sitting as a dose of vaccine but at a separate site.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Some persons will report a history of significant allergy to "tetanus shots." In most cases, the reaction occurred in the remote past and was probably caused by antitoxin derived from horse serum. More recently, however, the use of aluminum as an adjuvant, or substance added to a vaccine to increase the body's immune response, has been associated with skin eruptions and swelling in hypersensitive individuals. In some cases, these persons can be safely vaccinated for tetanus with a graduated series of shots. Adverse reactions of any kind to tetanus vaccine should be reported to the Center for Biologics Evaluation and Research (CBER) of the Food and Drug Administration (FDA).

Resources

BOOKS

Evelyn, Nancy. *The Herbal Medicine Chest*. Trumansburg, N.Y.: The Crossing Press, 1986.

Magill's Medical Guide, edited by Tracy Irons-Georges. Englewood Cliffs, N.J.: Salem Press, 1998.

PERIODICALS

Baylor, N. W., W. Egan, and P. Richman. "Aluminum Salts in Vaccines–US Perspective." *Vaccine* 20 (May 31, 2002)(Supplement 3): S18-S23.

Quddus, A., et al. "Neonatal Tetanus: Mortality Rate and Risk Factors in Loralai District, Pakistan." *International Journal of Epidemiology* 31 (June 2002): 648-653.

Rennels, M. B., M. A. Deloria, M. E. Pichichero, et al. "Lack of Consistent Relationship Between Quantity of Aluminum in Diphtheria-Tetanus-Acellular Pertussis Vaccines and Rates of Extensive Swelling Reactions." *Vaccine* 20 (May 31, 2002)(Supplement 3): S44-S47.

Shin, D. H., J. H. Park, P. J. Jung, et al. "A Case of Maternal Tetanus in Korea." *Journal of Korean Medical Science* 17 (April 2002): 260-262.

Williams, A. N., et al. "Tetanus Immunisation in Hypersensitive Individuals." *Journal of the Royal Army Medical Corps* 148 (June 2002): 148-150.

ORGANIZATIONS

Food and Drug Administration (FDA), Center for Biologics Evaluation and Research (CBER), 1401 Rockville Pike, Suite 200-N, Rockville, MD 20852. www.fda.gov/cber.

OTHER

Centers for Disease Control and Prevention. "Tetanus & Diphtheria (Td) Vaccine." Healthtouch Online. http://www.healthtouch.com/bin/EContent_HT/showAllLfts.asp.

"Shots for Safety." National Institute on Aging Age Page. www.nih.gov/nia/health/pubpub/shots.htm.

"TCM Herbal Database." China-Med.net. http://www.china-med.net/herb_search.html.

Lisa Frick
Rebecca J. Frey, PhD

Thai massage

Definition

Thai massage, also known as Nuad bo-Rarn in its traditional medical form, is a type of Oriental bodywork therapy that is based on the treatment of the human body, mind, and spirit. The therapy includes treating the electromagnetic or energetic field which surrounds, infuses and brings the body to life through pressure and/or manipulative massage.

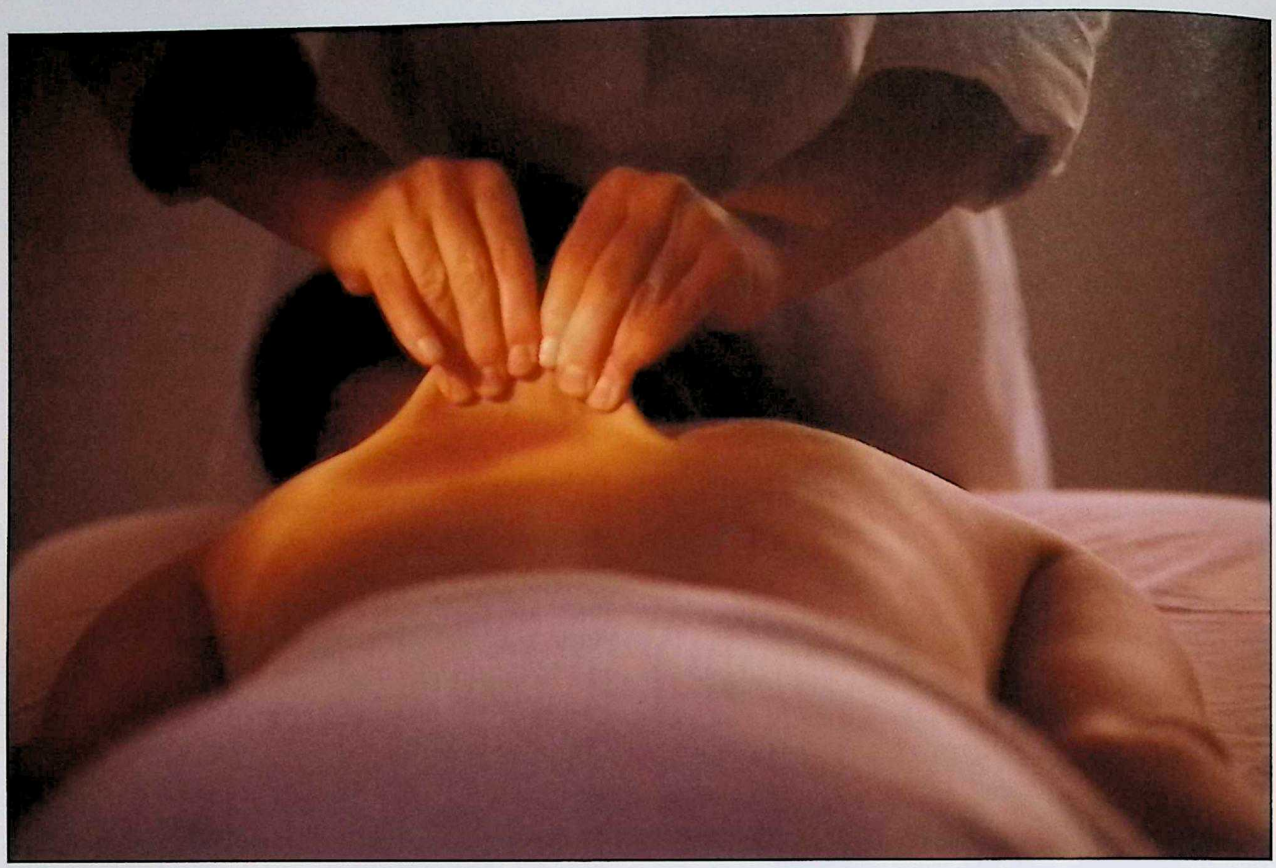
Origins

The origins of traditional Thai massage reputely began over 2,000 years ago along with the introduction of Buddhism. It is one of four branches of traditional medicine in Thailand, the others being herbs, **nutrition**, and spiritual practice. The legendary historical creator of Thai medicine is Dr. Jivaka Kumar

Man enjoying a Thai massage. *(© Peter Widmann / Alamy)*

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri



Thai massage therapist using techniques designed to alter the flow of qi, or energy, in the body. *(© Photo Researchers, Inc. Reproduced by permission.)*

Bhaccha, known as Shivago Komarpaj in Thailand. Bhaccha was from the north of India and said to be a close associate of the Buddha and chief to the original community gathered around the Buddha. The movement of medicine into Thailand accompanied migration of monks from India to Thailand, possibly around the second century B.C.E. Thai medicine developed within the context of Buddhist monasteries and temples, where Thai have traditionally sought relief from all kinds of suffering.

While the recorded history of Thai massage was lost during the Burmese attack on the royal capital of Ayutthia in 1767, the surviving records are now inscribed in stone and can be found at the Sala Moh Nuat (massage pavilion) within the temple of Pra Chetuphon in Bangkok, known as wat Po, the temple of the reclining Buddha. Its spiritual aspect also remains as teachers of the therapy begin classes with the practice of *wai-kru,* a series of prayers and recitations dedicated to Shivago Komarpaj, the father of Thai massage and the Goddess of Healing, and teaches of the tradition through the centuries.

Benefits

The benefits of Thai massage are numerous with the most predominant being the maintenance of good health and its ability to treat a wide spectrum of health concerns. Traditional Thai massage is known for its ability to clear the energy pathways.

The following are some of the benefits of traditional Thai massage.

- increases flexibility and range of movement
- eliminates muscle pain and muscle spasms
- improves postural alignment
- calms the nervous system and promotes a deep sense of relaxation with an increased energy level
- allows for a significant release of deep, emotional distress
- stimulates blood circulation and lymph drainage
- stimulates internal organs
- relieves fatigue, swollen limbs, painful joints, and headaches

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Buddhism—A philosophy founded in India in the sixth century B.C. and based on the teachings of the historical Buddha, born Siddartha Gautama.

Lymph—An alkaline fluid found in the lymphatic vessels that is usually clear, transparent fluid, unless it is draining from the intestines when it then appears milky.

Description

Thai massage looks like a cross between **acupressure**, **yoga**, and zen **shiatsu** and is inspired by Buddhist teachings. The actual massage consists of a technique that uses slow, rhythmic compressions and stretches along the body's energy lines, also called sen in Thai. Over 70,000 sen are said to exist within the body, and Thai massage concentrates on applying pressure along 10 of the most important sen using the palms of the hands, thumbs, elbows, and feet. The effort from the practitioner works to free tension within the body. Practitioners also position the body into yoga-like poses and gently rock the body to more deeply open joints and facilitate limbering.

A thorough Thai massage includes the following four basic positions:

- from the front with the client lying supine
- from the side with the client alternately lying on either side
- from the back with the client lying prone
- in a sitting position

One of the most important principles of Thai massage is the continuous flow of sequential movements that prepares the client for the next step in the massage. The practitioner is always aware of his position so that an uninterrupted, slow rhythm is maintained. Deep, sustained pressure ensures that the myofascia, or the muscle's connective tissue, soften and relax in order to release the flow of energy along the sen, and to prepare the client for the large-scale stretches that follow.

There are two styles of practice, Northern (*Chiang-mai*) and Southern (Bangkok). The former is considered gentler. The latter is faster and sometimes more intense but is widespread in Thailand, while the Northern style has become popular in the United States.

Preparations

The preparation needed before receiving a Thai massage is minimal. A Thai massage is typically performed on a floor mat enabling practitioners the ability to use their body weight and to incorporate the many movements that would not be possible on a massage table. Normally, the client remains fully clothed, and lubricant for the skin is rarely used. A Thai massage usually lasts one to two hours, but may be three hours or more if needed.

Precautions

While some of the pressure techniques used in Thai massage may seem too penetrating to many, most can adjust to it quickly. For those who are frail or stiff, a skilled practitioner will be able to adjust all of the soft tissue and manipulation work to their level of comfort.

Research and general acceptance

The practice of Thai massage is multinational. While a unique modality, Thai massage is slowly spreading into the western world. Knowledge of therapeutic benefits comes from anecdotal evidence rather than research in Western scientific mode.

Training and certification

Thai massage can be strenuous for the practitioner. To become a Thai master, it is said that the best place to learn is where the therapy originates. The well known school at Wat Po in Bangkok and in Chiang Mi, The Institute of Thai Massage, both in Thailand, are famous for their teachings of the ancient art. It is also possible to receive instruction in the United States from teachers who studied in Thailand, as well as Thai instructors who came over to offer classes in American massage school.

Practitioners of Thai massage are taught the most important aspects of the meditative spirit—awareness, mindfulness, and concentration. Correct body positioning and posture control while giving a massage are of vital importance to the practitioner in order to avoid injury, especially to the back.

Resources

PERIODICALS

Kallenbach, Laurel. "In Good Hands: Five hands-on therapies offer a combination of energy, reduced tension and a healing touch." *Delicious! Your magazine of Natural Living* (January 31, 2000).

Mercati, Maria. "The Healing Benefits of Oriental Massage." *Positive Health* (May 31, 1999).

Simpson, Ian. "Traditional Thai Massage." *Journal of the Australian Traditional-Medical Society* (June 30, 1998).

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

OTHER

American Oriental Bodywork Therapy Association. http://www.aobta.org.

Beth Kapes

Theanine

Description

Theanine is an amino acid, which is a building block of protein. It is found in tea that is made by steeping leaves from an evergreen shrub known as a tea plant or tea tree. The scientific name for the tea plant is *Camellia sinensis*, and it is in the family Theaceae. At one time, the plant had the genus name *Thea* instead of *Camellia*, and this led to the amino acid's name of theanine. The tea plant can reach 20–30 feet in height. It has fragrant, yellow-centered, white flowers and oblong, dark green leaves that can grow to as much as a foot long. Leaves from *Camellia sinensis* are used to make green, black, white, and oolong tea. The twigs and stems of the plant are also used to make another type of tea known as kukicha.

Camellia sinensis, a native plant in South Asia and Southeast Asia, is grown in the late 2000s in many tropical and subtropical regions of the world, where its leaves are gathered, dried, and eventually used to make tea. Tea plants arrived in North America in the late 1700s courtesy of André Michaux, a French botanist who tried to begin a crop near Charleston, South Carolina, but Michaux returned to Europe before the crop had taken hold. Two other major attempts to grow tea in the United States began in 1848 and in 1874, but both were halted following the untimely deaths of the tea-plantation owners. Finally in 1888, Charles Shepard and his plantation in Summerville, South Carolina, began producing tea. The oolong tea produced by his farm, called the Pinehurst Tea Plantation, was even good enough to win the 1904 World's Fair. Tea is still grown in the United States, particularly in the humid Southeast.

Theanine is a prominent component of tea. It is also known commercially as suntheanine, and in scientific circles as [gamma]-glutamylethylamide and [gamma]-ethylamino-L-glutamic acid.

General use

Tea made from the leaves of *Camellia sinensis* has been a popular beverage for many years, first in South and Southeast Asia and later in Europe, the United States, and other parts of the world. Most people drink it because they enjoy it, but tea is also a healthful beverage. Consumption of tea has been linked to such benefits as **cancer** prevention, decreased risk of **stroke**, a strengthened immune system, and reduced blood **cholesterol**. Historically, **green tea** in particular has been used as a relaxing agent.

Camellia sinensis is one of the only known plants to contain the amino acid theanine. It is also found in other *Camellia* species (*C. japonica* and *C. sasanqua*) and in a mushroom known as bay bolete (*Xerocomus badius* or *Boletus badius*). Theanine was first isolated from green tea in 1949. Theanine comes in two forms that are identical in chemical structure and composition, but are mirror images of one another. The vast majority of theanine in tea leaves is the form called L-theanine. Many scientific studies of the purported benefits of tea made with the leaves of *Camellia sinensis* have focused on L-theanine.

Scientific studies have shown that L-theanine helps relieve **anxiety**. In a study published in a 2007 issue of *Biological Psychology*, for instance, researchers gave participants either water or L-theanine dissolved in water. The participants did not know, and could not tell, which they were drinking. The participants were then asked to perform a mental arithmetic **exercise**. The researchers found that L-theanine reduced both the perceived **stress** felt by the participants as well as their physiological stress, which the researchers were able to measure objectively. Other studies have shown similar anti-anxiety effects.

Another study presented at the Fourth International Scientific Symposium on Tea and Human Health in 2007 revealed that the combination of theanine and caffeine—both occur naturally in tea made with *Camellia sinensis* leaves—heightened the activity of nerve cells in the brain and improved concentration. The study's results showed individuals who had consumed theanine and **caffeine** together were able to focus on the tasks at hand better than those who had taken theanine or caffeine alone, or those who had taken neither. Subsequently, researchers in 2008 investigated the effects of theanine and caffeine on blood pressure and cognitive performance. The researchers for this study, which was published in *Psychopharmacology*, tested the two compounds in 48 healthy adults. They found that theanine did not cause jitteriness, as caffeine did, and that it also reduced the increases in blood pressure that caffeine promoted. The reduction in blood pressure has also been noted in other studies. Some even suggest that tea may reduce the risk of cardiovascular and cerebrovascular disease, although

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

that reduction may be related to other compounds in tea, such as **antioxidants** called catechins. The tea plant converts theanine into catechins.

Theanine may also improve the effectiveness of various agents used to treat cancer. Animal studies have shown that it enhances the antitumor activity of the cancer-treatment agent known as doxorubicin and may do the same with other agents. For example, a study published in the October 2000 issue of *Cancer Letters* reported that theanine increased the effects of the cancer treatment idarubicin in mice that had been inoculated with **leukemia** cells. The researchers combined theanine with a low dose of idarubicin. Normally at that dose, idarubicin has no effect on tumors. In combination with theanine, however, the weight of the tumors decreased significantly. The researchers also tested theanine with regular-dose idarubicin and found that it not only heightened idarubicin's antitumor effects, but also eliminated an adverse side effect of idarubicin. That side effect is myelosuppression, or a drop in blood production from bone marrow. In addition, a separate study published in a 2006 issue of the *Journal of Agricultural and Food Chemistry* indicated that theanine had anti-cancer effects on colon, breast, liver, and prostate cancers.

Research has suggested that theanine may help fight off bacterial **infections** by boosting the body's immune response, but more studies were needed as of 2008 before this hypothesis could be confirmed. Limited research has also suggested that it might have a protective effect against **atherosclerosis** (often called hardening of the arteries), but again more research was required.

Practitioners of herbal medicine may prescribe theanine supplements to boost the immune system, counter anxiety, promote a good night's sleep, improve mood, and heighten both learning and memory. Many anti-anxiety medications make users drowsy, but theanine does not appear to have this side effect. Some users take theanine supplements to help them focus on the task at hand and to promote creativity. Theanine is also sometimes prescribed to treat high cholesterol. It may also be beneficial in protecting individuals against cerebral **ischemia**, which is insufficient blood flow to the brain often caused by a stroke.

Preparations

Tea from these leaves can be processed into black, green, oolong, or white tea. The upper leaves of the plant are used to make black, green, and oolong tea; the leaf buds and some new leaves are used to make white tea. Black tea is made by wilting the leaves and then rolling them while exposing them to oxygen, a process known as oxidation, which makes the leaves dark brown or black. Oolong leaves are only partially oxidized. Green and white leaves are steamed or fired (exposed to heat), which inactivates the enzymes that promote oxidation, so green and white tea leaves are unoxidized.

To make tea, experts recommend that black and oolong tea leaves be steeped in water at approximately the boiling point (212 degrees Fahrenheit) and that green and white tea leaves be steeped in water that has boiled but then cooled down to about 165–185 degrees Fahrenheit. Properly heated water will produce a green-colored cup of green tea, while overly heated water will produce more of a yellow-colored cup of green tea as well as a bitter flavor.

Theanine is available as a supplement that comes in capsule form. Herbal practitioners may prescribe doses of 100–400 mg of theanine per day.

KEY TERMS

Camellia sinensis—Tea plant or tea tree from which black, oolong, green, and white tea are made.

Catechins—Antioxidants that appear to have numerous healthful benefits.

Precautions

Individuals should consult their primary healthcare physician about any health problems they have and refrain from self-treating such conditions as high blood pressure or high cholesterol with tea or other alternative-medicine choices. In addition, women who are pregnant or lactating should consult a primary healthcare physician about the use of any supplements.

Side effects

No known side effects existed as of 2008. As noted, theanine has relaxing effects without the sedative side effects common to other anti-anxiety supplements.

Interactions

Persons who are taking medications to lower blood pressure or lipids, or who are undergoing chemotherapy should consult their primary healthcare physician before taking theanine, which may boost the effects of those agents. In addition, theanine may counter the stimulating action of caffeine or other similar agents.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Resources

PERIODICALS

Eschenauer, Gregory, and Burgunda Sweet. "Pharmacology and Therapeutic Uses of Theanine." *American Journal of Health-System Pharmacy* 63, no. 1 (January 1, 2006): 26–32.

Friedman, Mendel, Bruce E. Mackey, Hyun-Jeong Kim, In-Seon Lee, Kap-Rang Lee, Seung-Un Lee, et al. "Structure-Activity Relationships of Tea Compounds against Human Cancer Cells." *Biological Psychology* 55, no. 2 (January 24, 2007): 243–253.

Kimura, Kenta, Makoto Ozeki, Lekh Raj Juneja, and Hideki Ohira. "L-theanine Reduces Psychological and Physiological Stress Responses." *Biological Psychology* 74, no. 1 (January 2007): 39–45.

Raloff, Janet. "Distracted? Tea Might Help Your Focus." *Science News* 172, no. 13 (September 29, 2007): 206.

Rogers, Peter J., Jessica E. Smith, Susan V. Heatherley, and C. W. Pleydell-Pearce. "Time for Tea: mood, Blood Pressure and Cognitive Performance Effects of Caffeine and Theanine Administered Alone and Together." *Psychopharmacology* 195, no. 4 (January 2008): 569–577.

OTHER

"Health and Tea FAQs." University of Arizona Mel and Enid Zuckerman College of Public Health, 2007. http://www.publichealth.arizona.edu/(S(q0ypi4n35-toqn255mx20sg55))/Divisions/HPS/TeaStudies/TeaStudyFAQs.aspx?AspxAutoDetectCookieSupport=1 (March 4, 2008).

Leslie Mertz, Ph.D.

Therapeutic touch

Definition

Therapeutic touch, or TT, is a noninvasive method of healing derived from an ancient laying-on of hands technique. In TT, the practitioner alters the patient's energy field through a transfer of energy from the hands of the practitioner to the patient.

Origins

Therapeutic touch was developed in 1972 by Dora Kunz, a psychic healer, and Dolores Krieger, PH.D., R.N, a nurse and professor of nursing at New York University. In 1971, when Krieger had been working as a registered nurse in a hospital, she became very frustrated when one of her patients, a 30-year-old female, lay dying from a gallbladder condition. In desperation, she tried what she was learning from Kunz. After one treatment, the patient's condition began to mend; and she lived, surprising the other hospital staff. Krieger and Kunz met during the study of Oskar Estebany, a world renowned healer. They had invited Estebany to form a study group for three years, observing his work with patients. In this study, Estebany practiced healing on various patients using the laying-on of hands. Using her psychic and intuitive abilities, Kunz would observe and assist in the healing, while Krieger recorded the activities of the healing session and compiled profiles of the patients.

As the study progressed, Kunz began teaching Krieger how to heal, based on her perceptions of Estebany's healing techniques. During her research of ancient healing methods, Krieger concluded that the energy transfer between the healer and the recipient that takes place in a TT session is *prana*, an Eastern Indian word that means energy, vitality, and vigor. Krieger then combined her research with Kunz's techniques to develop TT.

TT was initially developed for use by persons in the health professions, but is currently taught worldwide to anyone who is interested in learning the technique. An estimated 100,000 people around the world have been trained in TT; 43,000 of those persons are healthcare professionals, many of whom use TT in conjunction with traditional medicine, as well as osteopathic, **chiropractic**, naturopathic, and homeopathic therapies. TT is taught in over 100 colleges, universities, and medical schools.

Benefits

The major effects of TT are **relaxation**, **pain** reduction, accelerated healing, and alleviation of psychosomatic symptoms. Studies have shown that TT has a beneficial effect on the blood, as it has the ability to raise hemoglobin values. It also affects brain waves to induce a relaxed state. TT can induce the relaxation response often within five minutes.

Krieger has said that it is not individual illnesses that validate the effectiveness of TT, but rather the body systems that are most sensitive to TT. She and others have found that the most sensitive body system is the autonomic nervous system (ANS), which, for example, controls urination. Next in order of sensitivity are the lymphatic and circulatory systems, and then finally the musculoskeletal system. In addition, the female endocrine system is more sensitive to TT than the corresponding male system. Thus, TT helps with **dysmenorrhea**, **amenorrhea**, problems with contraception, and the course of **pregnancy**.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

DOLORES KRIEGER (1935–)

Dolores Krieger, a prominent professor of nursing at the New York University Division of Nursing, conceived of therapeutic touch as a healing technique in the early 1970s and introduced the therapy in 1972. Therapeutic touch rarely consists of physical contact with the patient. The practitioner focuses positive energy through their hands, which are held or waved two to three inches away from the patient, and directs it towards the patient's energy field. Krieger developed the technique along with a colleague, Dora Van Gelder Kunz, who is believed to be clairvoyant. They initially taught the system to graduate students at the nursing school, and it evolved from that basis. Since the introduction of therapeutic touch, Krieger traveled the world in teaching the technique before she retired as professor emerita at the university. An estimated 70,000 nurses were trained by Krieger and Kunz.

In 1981 Dr. Krieger published, *Foundations for Holistic Health Nursing Practices.* She later published a manual, *The Therapeutic Touch: how to use you hands to help or to heal,* in 1992.

Krieger became embroiled in controversy over the potential benefits of therapeutic touch technique between 1996-98 when nine-year-old schoolgirl Emily Rosa challenged the validity of the therapy with a simple experiment. She gathered 21 practitioners and through a covered box held her hand over one of the practitioner's own to test whether they could sense her energy field. Only 44% of the time were the practitioners able to determine which of their hands that Rosa's was hovering over. Although Rosa contacted Krieger in 1997, Krieger refused to meet with her, refused to participate in Rosa's experiment, and disputed the relevancy of an elementary school student's observations. Krieger holds both an R.N. and a Ph.D. degree and dismissed the validity of the experiment due to the student's and practitioners' lack of experience.

Krieger continues to promote her technique and her latest book, *Living the Therapeutic Touch,* was published by in 1999.

TT is reported to have a positive effect on the immune system and thus accelerates the healing of **wounds**. Nurses use therapeutic touch in operating rooms to calm patients before surgery and in recovery rooms on postoperative patients to help speed the healing process. TT is used in the treatment of terminally ill patients, such as those with **cancer** and acquired immune deficiency syndrome (**AIDS**), to relieve **anxiety** and **stress**, create peace of mind, and reduce pain.

Many nurses use TT in the nursery. The conditions of many premature babies who received TT have reportedly improved rapidly. TT has been used to calm colicky infants, assist women in **childbirth**, and increase milk let-down in breast-feeding mothers.

Other claims made for TT include relief of acute pain, **nausea**, **diarrhea**, tension and migraine headaches, **fever**, and joint and tissue swelling. TT has been used to treat thyroid imbalances, ulcers, psychosomatic illnesses, **premenstrual syndrome**, **Alzheimer's disease**, **stroke** and coma patients, **multiple sclerosis**, **measles**, **infections**, **asthma**, and bone and muscle injuries.

Therapeutic touch is performed in many different locations, including healing centers, delivery rooms, hospitals, hospice settings, accident scenes, homes, and schools.

Description

Therapeutic touch treats the whole person: relaxes the mind, heals the body, and soothes the spirit. The principle behind it is that it does not stop at the skin. The human body has an energy field, or aura, that extends several inches to several feet from the body. When illness occurs, it creates a disturbance or blockage in the vital energy field. The TT practitioner uses her/his hands to sense the blockage or disturbance. In a series of gentle strokes, the healer removes the disturbance and rebalances the energy to restore health.

The TT session generally lasts about 20–30 minutes. Although the technique is called "therapeutic touch," there is generally no touching of the client's physical body, only his or her energetic body or field. TT is usually performed on fully clothed patients who are either lying down on a flat surface or sitting up in a chair.

Each session consists of five steps. Before the session begins, the practitioner enters a state of quiet **meditation** where he/she becomes centered and grounded in order to establish intent for the healing session and to gain access to the compassion necessary to heal.

The second step involves an assessment of the person's vital energy field. During this step, the practitioner places the palms of his/her hands 2–3 in (5–8 cm) from the patient's body and sweeps them over the energy field in slow, gentle strokes beginning at the head and moving toward the feet. The practitioner might feel heat, coolness, heaviness, pressure, or a

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Aura—An invisible energy field surrounding the physical body.

Prana—An Indian word that refers to the spiritual energy or vital force within a person.

prickly or tingling sensation. These cues, as they are called, signal blockages or disturbances in the field.

To remove these blockages and restore balance to the body, the practitioner then performs a series of downward sweeping movements to clear away any energy congestion and smooth the energy field. This is known as the unruffling process and is generally performed from the head toward the feet. To prevent any energy from clinging to him/her, the practitioner shakes his/her hands after each stroke.

During the next phase, the practitioner acts as a conduit to transfer energy to the patient. The energy used is not solely the energy of the practitioner. The practitioner relies on a universal source of energy so as not to deplete his/her own supply. In short, the healer acts as an energy support system until the patient's immune system is able to take over.

The practitioner then smoothes the field to balance the energy and create a symmetrical flow. When the session is over, it is recommended that the patient relax for 10–15 minutes in order for the energies to stabilize.

Side effects

The side effects reported occur when an excess of energy enters the body for an extended period of time creating restlessness, irritability, and hostility, or increasing anxiety and pain. **Burns** are sensitive to therapeutic touch, and it is recommended that TT be performed on burned tissue for short periods, generally two to three minutes at a time.

Research and general acceptance

Therapeutic touch is not generally accepted by Western medical professionals, although it has been studied by researchers at the Office of Alternative Medicine of the National Institutes of Health. Anecdotal research has been performed on TT since its development in 1972, but little quantitative research has been carried out. In April 1998 therapeutic touch became national news, however, when an elementary-school student carried out research for a science project that questioned the claims made for TT. Twenty-one TT practitioners with experience ranging from one to 27 years were blindfolded and asked to identify whether the investigator's hand was closer to their right hand or their left. Placement of the investigator's hand was determined by flipping a coin. The TT practitioners were able to identify the correct hand in only 123 (44%) of 280 trials, a figure that could result from random chance alone.

On the other side of the debate, one frequently cited study was designed to determine the effect TT would have on wounds that resulted from a biopsy of the upper arm. Forty-four patients placed their injured arms through a hole in a door. Twenty-two of them received TT on their arms. The other half received no treatment. The wounds treated with TT healed more quickly than the wounds that received no treatment.

In 1998, a study was performed on 27 patients with **osteoarthritis** in at least one knee. For six weeks, the patients were treated with therapeutic touch, mock therapeutic touch, or standard care. According to *The Journal of Family Practice*, the results showed that the patients who had received TT had "significantly decreased pain and improved function as compared with both the placebo and control groups."

Therapeutic touch can be combined with a number of different therapies, including **acupressure**, massage, mental imagery, physical therapy, and **yoga**. When combined with massage and physiotherapy, TT may reduce tension headaches, back pain, stress-related problems, circulatory problems, and **constipation**. **Shiatsu** and TT may help sinusitis, digestive disorders, **muscle cramps**, menstrual difficulties, and **insomnia**. Yoga and TT may be beneficial in the treatment of **bronchitis**, asthma, blood pressure, **fatigue**, and anxiety.

TT is practiced in over 70 countries worldwide: by Egyptians and Israelis during fighting in the Gaza Strip; in South Africa to reduce racial strife; and in Poland, Thailand, and the former Soviet Union.

Training and certification

Therapeutic touch is taught at over 100 universities and nursing and medical schools around the United States and Canada. Although the technique was developed primarily for nurses, anyone can learn TT.

State laws vary regarding the practice of TT. In general, laypersons are allowed to practice TT within their families. Therapeutic touch is considered an extension of health care skills, so most health care professionals are covered under state medical practice acts.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Many hospitals have established policies allowing nurses and staff to perform TT on patients at no extra charge. The American Nurse's Association often holds workshops on TT at national conventions. Therapeutic touch classes are often held for the general public through community education, healing clinics, and holistic schools.

Resources

BOOKS

Krieger, Dolores, Ph.D., R.N. *Accepting Your Power to Heal. The Personal Practice of Therapeutic Touch.* Bear & Company, 1993.

Krieger, Dolores, Ph.D., R.N. *The Therapeutic Touch. How to Use Your Hands to Help or to Heal.* Prentice Hall Press, 1979.

Macrae, Janet, Ph.D., R.N. *Therapeutic Touch: A Practical Guide.* Knopf, 1998.

PERIODICALS

Baird, Carol L. "First-line Treatment for Osteoarthritis: Part 2: Nonpharmacologic Interventions and Evaluation." *Orthopaedic Nursing* 20 (November-December 2001): 13–20.

Gordon, A., J. H. Merenstein, et al. "The Effects of Therapeutic Touch on Clients with Osteoarthritis of the Knee." *Journal of Family Practice* 47 (1998): 271–277.

Rosa, Linda, MSN, Emily Rosa, Larry Sarner, and Stephen Barrett, MD. "A Close Look at Therapeutic Touch." *Journal of the American Medical Association* 279 (April 1, 1998): 1005–11.

OTHER

The Nurse Healers Professional Associates International (NH-PAI), the Official Organization of Therapeutic Touch. 3760 S. Highland Drive, Salt Lake City, UT 84106. (801) 273-3399. nhpai@therapeutic-touch.org. http://www.therapeutic-touch.org

Jennifer Wurges
Rebecca J. Frey, PhD

Thermography

Definition

Thermography, also known as digital infrared imaging (DII) or digital infrared thermal imaging (DITI), is a non-invasive procedure used to help diagnose a variety of diseases and conditions. Thermography uses sensors and complex computer imaging technology to visualize body temperatures. Trained doctors and technicians can use the computer generated thermal images to see various body processes. Thermography is based on the idea that various physiological processes cause higher levels of cell metabolism than others. Areas of the body in which cells are undergoing large amounts of metabolism have higher temperatures than others because cell metabolism produces heat as a by-product.

Thermography uses sensors and complex computer imaging technology to visualize body temperatures. *(Nutscode / T Service / Photo Researchers, Inc.)*

Origins

Interest in the infrared radiation emitted from the human body dates back at least to the 1920s. At first, however, the technology was only researched for use by the military. Infrared detection devices can pick up thermal information about a body or object even if it is camouflaged and in the dark. The military was therefore interested in the use of thermal imaging to help soldiers, and others, see at night and to detect a variety of weapons that leave a thermal trace. The first use of thermal information for the diagnosis of **breast cancer** was published in 1956 in the *Journal of the Canadian Medical Association*. Although the technique and equipment used were not sophisticated, the research was compelling and led to interest in the medical community in doing further research.

After the late 1950s, research continued on the possible use of thermography to diagnosis **cancer** and other diseases, especially breast cancer. Studies both supported thermography in its predicative abilities and showed that it provided no significant information. In the 1970s, a large study on thermography and its use in detecting breast cancer showed that it was not particularly effective. Proponents of thermography criticized the study for poor construction and use of individuals who were not properly trained. Although the validity of the study continued to be debated, it caused many people to lose interest in thermography.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

As of 2008, many doctors and other medical professionals believe thermography can be an important diagnostic tool. Although it does not have the amazing diagnostic properties some had once hoped it would, thermography is often recognized as playing an important complementary role, especially in breast cancer detection. There are many trained and licensed practitioners around the United States who provide thermography services.

Benefits

There are many potential benefits of thermography, although some of them are more widely accepted than others. Thermography is most widely used as a diagnostic device for breast cancer. Before a tumor forms in a breast, there is often a network of blood vessels that forms. These vessels are often the first change that takes place in a breast in the presence of cancerous cells. These additional blood vessels generate additional heat because of the increased metabolic processes. This increased heat is detectable on the thermal image. Many practitioners believe that this can help determine if a breast may become cancerous and should be watched closely, before any other signs of cancer are present. Thermography can also be used in some cases in which breast biopsy is indicated. A thermal image can help indicate to a knowledgeable doctor if a suspect lesion is cancerous.

Thermography is also believed by some practitioners to be useful in other areas of medicine. Some chiropractors believe that thermography can help diagnose the cause of **pain** in certain patients when the cause is not clear. Other healthcare professionals believe that thermography can help diagnose other problems, including problems with joints, nerves, and soft tissues. Thermography is non-invasive and, in many cases, relatively inexpensive, which may make it a valuable diagnostic tool.

Description

During thermography individuals are either standing or lying down. No part of the imaging equipment actually touches the individual, although devices may be used to steady the part of the body being imaged. Thermography does not require radiation or any potentially harmful chemicals to be ingested. Instead, it relies on the infrared radiation (heat) being given off naturally by the human body. The infrared detection device is aimed at the body part being imaged, or it can be used to produce a full body image. The infrared detection device takes the infrared radiation received and changes it into electrical impulses that can be interpreted by a computer. The computer then produces a color image map, known as a thermogram, that shows different temperature areas in different colors. Many infrared detection devices used in thermography are sensitive to temperature differentials as small as 0.1° Celsius.

The thermographic procedure itself usually takes between 15 and 45 minutes, depending on variables such as how many angles are needed and the area being imaged. It should be performed by a trained, certified thermographer to ensure the highest level of accuracy. After the procedure is finished, an individual trained in reading thermograms, sometimes called a thermologist, interprets the image.

The thermologist looks at the thermogram for different characteristics depending on the area of the body and the suspected problem. In many cases the thermologist may search for an increased temperature over normal because this may indicate increased blood flow to the area. When examining thermograms for breast cancer screening and diagnoses, the thermologist compares the thermal maps of the two breasts. Any difference in these thermal maps may indicate a problem. For women who do not yet have any indication of breast cancer, a thermal scan may be kept on record as a baseline for interpreting later thermograms. Any change in the thermogram over time may indicate a potential problem.

In breast thermograms, cancerous or precancerous areas show up as areas of increased temperature because cancerous cells require more nutrients than normal body cells and so they draw increased blood flow to them. The additional blood flow causes increased metabolic activity and shows up on the thermogram as an area of increased temperature.

Preparations

Typically individuals are cautioned not to expose themselves to strong sunlight or remain in the sun for a lot of time on the day a scan is performed. Many practitioners ask individuals not to smoke for a few hours before the scan, and not to use lotions on the day of the scan as these may interfere with the accuracy of the thermographic imaging equipment. The individual will be asked to remove any clothing covering the subject area. The individual may be asked to sit for fifteen minutes or so in the room in which the imaging will occur so that the skin's surface temperature can come in line with the room temperature to ensure that the digital infrared image is accurate.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Precautions

There are no side effects expected from thermography. No special precautions are recommended. However, it is important that thermography be used in conjunction with, not as a replacement for, other screening and diagnostic procedures. Women who decide to undergo thermography for breast cancer screening should also get all scheduled mammograms and physical examinations, even if the thermographic procedure shows no signs of a problem.

Research and general acceptance

Thermography is a highly debated procedure. In 1982 the United States Food and Drug Administration (FDA) approved it for use as an adjunctive procedure for screening for breast cancer. However, many professionals do not believe it to be an effective tool. It is not covered by many insurance providers and, as of 2008, was not covered by Medicare. It is available at a small number of U.S. clinics and clinics throughout the world.

Research scientists in the 2000s continued to refine thermography's ability to detect and diagnoses breast cancer. In this work, they have attempted to develop new and better thermographic equipment and techniques, and others are investigating thermal images of both normal and abnormal breasts to help achieve baselines. One 2007 study even found that in women with normal breast health the average temperature of the left breast is actually somewhat higher than the average temperature of the right breast. Because comparisons between breasts are often used to detect abnormalities, information of this sort can help medical practitioners have more accurate diagnoses.

Other research has focused on non breast-cancer related ways to use thermography in medicine. A study published in 2006 in the *British Journal of Clinical Pharmacology* found that facial thermography can determine the activity of antihistamines in the nose just as accurately as traditional methods. Thermography was also being applied to dermatology, rheumatology, and cardiology. Because thermography is a noninvasive procedure, it is attractive as a possible alternative diagnostic tool in many fields of medicine.

Training and certification

Individuals who perform the thermographic imaging procedure and those who make diagnosis based on the resulting images must receive special training in thermographic technology. There are a number of programs in the United States that provide training and certification in thermography and infrared digital imaging in general. The American College of Clinical Thermography (ACCT) provides training and certification in thermography for medical uses.

Many different healthcare professionals may be certified thermographers and thermologers. These may include doctors, nurses, and technicians, among others. The ACCT provides three levels of certification in clinical thermography. This training teaches and certifies individuals in the use of thermographic equipment. The ACCT also provides three levels of certification in clinical thermology, the practice of reading thermographic images. The ACCT provides certification in two levels of thermography clinic management.

KEY TERMS

Thermologist—A professional trained in reading thermograms.

Thermogram—The image created by thermography.

Resources

BOOKS

Joy, Janet E., Edward E. Penhoet, and Diana B. Petitti, eds. *Saving Women's Lives: Strategies for Improving Breast Cancer Detection and Diagnosis*. Washington DC: National Academies Press, 2005.

Suri, Jasjit, S., and Rangaraj M. Rangayyan, eds. *Recent Advances in Breast Imaging, Mammography, and Computer-Aided Diagnosis of Breast Cancer*. Bellingham, WA: SPIE Press, 2006.

Tartar, Marie, Christopher E. Comstock, and Michael S. Kipper. *Breast Cancer Imaging: A Multidisciplinary, Multimodality Approach*. Philadelphia: Mosby/Elsevier, 2008.

PERIODICALS

Clark, A. T., et al. "Facial Thermography Is a Sensitive and Specific Method for Assessing Food Challenge Outcome." *Allergy* 62, No. 7 (July 2007): 744–750.

Zhang, Dong. "Method of Selecting Acupoints for Acupuncture Treatment of Peripheral Facial Paralysis by Thermography." *American Journal of Chinese Medicine* 35, no. 6 (December 30, 2007): 967–976.

ORGANIZATIONS

National Association of Certified Thermographers, 4248 Park Glen Rd., Minneapolis, MN, 55407, (866) 417-3949, http://www.mynact.org.

Helen Davidson

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Thiamine

Description

Thiamine, also known as vitamin B_1, was the first of the water-soluble B-vitamin family to be discovered. It is an essential component of an enzyme, thiamine pyrophosphate, that is involved in metabolizing carbohydrates. Thiamine works closely with other B vitamins to assist in the utilization of proteins and fats as well, and helps mucous membranes and the heart to stay healthy. The brain relies on thiamine's role in the conversion of blood sugar (glucose) into biological energy to function properly. Thiamine is also involved in certain key metabolic reactions occurring in nervous tissue, the heart, in the formation of red blood cells, and in the maintenance of smooth and skeletal muscle.

General use

The recommended daily allowance (RDA) of thiamine is 0.3 mg for infants less than six months old, 0.4 mg for those from six months to one year old, 0.7 mg for children ages one to three years, 0.9 mg for those four to six years, and 1.0 mg for those seven to 10 years. Requirements vary slightly by gender after age 10. Males need 1.3 mg from 11 to 14 years, 1.5 mg from 15 to 50 years, and 1.2 mg when over age 50 years. Females require 1.1 mg from 11 to 50 years of age, and 1.0 mg if older than 50 years. The RDA is slightly higher for women who are pregnant (1.5 mg) or lactating (1.6 mg). Adults need a minimum of 1.0 mg of thiamine a day, but the requirement is increased by approximately 0.5 mg for each 1,000 calories of daily dietary intake over a 2,000-calorie base.

Thiamine has limited therapeutic use apart from supplements for people who are deficient or have significant risk factors for deficiency, such as **alcoholism**. High doses are used to treat some metabolic disorders, including certain enzyme deficiencies, Leigh's disease, and maple syrup urine disease. People suffering from diabetic neuropathy may sometimes benefit from additional thiamine. This supplementation should be taken only on the advice of a healthcare provider. Claims have been made that it can also help people with **Alzheimer's disease**, **epilepsy**, **canker sores**, **depression**, **fatigue**, **fibromyalgia**, and **motion sickness**. Improvement of these conditions based on supplementation with thiamine is unsubstantiated. Although a deficiency of thiamine may cause canker sores, taking extra amounts of the vitamin after they appear does not seem to help them heal.

Recommended dietary allowance of thiamin

Age	mg/day
Children 0-6 mos.	0.2
Children 7-12 mos.	0.3
Children 1-3 yrs.	0.5
Children 4-8 yrs.	0.6
Children 9-13 yrs.	0.9
Boys 14-18 yrs.	1.2
Girls 14-18 yrs.	1.0
Men ≥ 19 yrs.	1.2
Women ≥ 19 yrs.	1.1
Pregnant women	1.4
Breastfeeding women	1.4

Foods that contain thiamin	mg
Sunflower seeds, 1/2 cup	1.64
Beans, baked, canned with pork, 1 cup	0.60
Tuna, 4 oz.	0.57
Sesame seeds, 1/2 cup	0.56
Beans, black, cooked, 1 cup	0.42
Peas, green, boiled, 1 cup	0.41
Beans, navy, cooked, 1 cup	0.37
Peas, split, cooked, 1 cup	0.37
Corn, cooked, 1 cup	0.36
Lentils, cooked, 1 cup	0.33
Beans, lima, cooked, 1 cup	0.30
Beans, kidney, cooked, 1 cup	0.28
Oats, whole grain, cooked, 1 packet	0.26
Asparagus, boiled, 1 cup	0.22
Brussels sprouts, boiled, 1 cup	0.17
Spinach, boiled, 1 cup	0.17
Squash, winter, baked, 1 cup	0.17
Pineapple, 1 cup	0.14
Carrots, raw, 1 cup	0.12
Watermelon, 1 cup	0.12
Oranges, 1 whole	0.11
Tomato, 1 cup	0.11
Broccoli, steamed, 1 cup	0.09
Beans, green, boiled, 1 cup	0.09
Cabbage, boiled, 1 cup	0.09
Eggplant, cooked, 1 cup	0.08
Squash, summer, cooked, 1 cup	0.08
Kale, boiled, 1 cup	0.07
Beans, baked, canned with pork, 1 cup	0.06
Celery, raw, 1 cup	0.06
Red peppers, raw, 1 cup	0.06
Turnip greens, cooked, 1 cup	0.06
Romaine lettuce, 1 cup	0.05
Cauliflower, boiled, 1 cup	0.05

AI = Adequate Intake
mg = milligram

(Illustration by GGS Information Services. Cengage Learning, Gale)

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Beriberi—A deficiency disease caused by insufficient thiamine in the diet. Its symptoms include abdominal cramps, muscle spasms, and memory loss.

Hypermetabolic—Conditions that increase the rate of metabolism, such as fever and hyperthyroidism.

Neuropathy—Abnormality of the nerves that may be manifested as numbness, tingling, or weakness of the affected area.

Wernicke-Korsakoff syndrome—A disorder of the central nervous system resulting from long-term thiamine deficiency. It is characterized by amnesia, confusion, visual problems, and unsteady gait; and is most commonly seen in alcoholics.

Preparations

Natural sources

While all plant and animal foods have thiamine, higher levels of thiamine are found in many nuts, seeds, brown rice, seafood, and whole-grain products. Sunflower seeds are a particularly good source. Grains are stripped of the B vitamin content during processing, but it is often added back to breads, cereals, and baked goods. Legumes, milk, beef liver, and pork are other foods with high vitamin B_1 content. Thiamine is destroyed by prolonged high temperatures, but not by freezing. Food should be cooked in small amounts of water so that thiamine and other water-soluble vitamins don't leach out. Baking soda should not be added to vegetables, and fresh foods should be eaten to avoid sulfite preservatives. Both of these chemicals will break down the thiamine content found in foods. Drinking tea or alcohol with a meal will also drastically decrease the amount of thiamine that is absorbed by the body.

Supplemental sources

Thiamine is available in oral, intramuscular injectable, and intravenous formulations. Injectable formulas are usually preserved for persons who are severely thiamine deficient. Supplements should always be stored in a cool dry place, away from direct light, and out of the reach of children.

Deficiency

A deficiency of thiamine leads to a condition known as beriberi. Once common in sailors, it has become rare in the industrialized parts of the world except in cases of alcoholism and certain disease conditions. Beriberi is, however, frequently found in refugee camps and similar shelters for displaced persons. Infantile beriberi is presently the leading cause of death among the children of ethnic minority groups in southeast Asia. The syndrome typically causes poor appetite, abdominal **pain**, heart enlargement, **constipation**, weakness, swelling of limbs, **muscle spasms**, **insomnia**, and **memory loss**. Under treatment, the condition can resolve very quickly. Untreated beriberi will lead eventually to Wernicke-Korsakoff syndrome. These patients experience confusion, disorientation, inability to speak, gait difficulties, numbness or tingling of extremities, **edema**, **nausea**, **vomiting**, visual difficulties, and may progress to psychosis, coma, and death. Even in advanced states, this condition can be reversible if thiamine is given, nutritional status is improved, and use of alcohol is stopped.

Risk factors for deficiency

The leading risk factor for developing a deficiency of thiamine is alcoholism. Generally, alcoholics eat poorly, and therefore have a low dietary intake of thiamine and other vitamins to begin with. Alcohol also acts directly to destroy thiamine, and increases the excretion of it. People with **cirrhosis** of the liver, malabsorption syndromes, diabetes, kidney disease, chronic **infections**, or hypermetabolic conditions also have increased susceptibility to deficiency. The elderly are more prone to poor nutritional status, as well as difficulties with absorption, and may need a supplement. Others with nutritionally inadequate **diets**, or an increased need as a result of **stress**, illness, or surgery may benefit from additional vitamin B_1 intake since utilization is higher under these conditions. Those who diet or fast frequently may also be at risk for low levels of thiamine. Use of tobacco products, or carbonate and citrate food additives can impair thiamine absorption. A shortage of vitamin B_1 is likely to be accompanied by a shortage of other B vitamins, and possibly other nutrients as well. A supplement containing a balance of B complex and other vitamins is usually the best approach unless there is a specific indication for a higher dose of thiamine, or other individual vitamins.

Precautions

Thiamine should not be taken by anyone with a known allergy to B vitamins, which occurs rarely.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Side effects

In very unusual circumstances, large doses of thiamine may cause **rashes**, **itching**, or swelling. These reactions are more common with intravenous injections than oral supplements. Most people do not experience any side effects from oral thiamine.

Interactions

Oral contraceptives, antibiotics, sulfa drugs, and certain types of diuretics may lower thiamine levels in the body. Consult a health care professional about the advisability of supplementation. Taking this vitamin may also intensify the effects of neuromuscular blocking agents that are used during some surgical procedures. B vitamins are best absorbed as a complex, and **magnesium** also promotes the absorption of thiamine.

Resources

BOOKS

Bratman, Steven, and David Kroll. *Natural Health Bible*. Prima Publishing, 1999.

Griffith, H. Winter. *Vitamins, Herbs, Minerals & Supplements: The Complete Guide*. Arizona: Fisher Books, 1998.

Jellin, Jeff, Forrest Batz, and Kathy Hitchens. *Pharmacist's Letter/Prescriber's Letter Natural Medicines Comprehensive Database*. California: Therapeutic Research Faculty, 1999.

Pressman, Alan H., and Sheila Buff. *The Complete Idiot's Guide to Vitamins and Minerals*. New York: Alpha Books, 1997.

PERIODICALS

McGready, Rose, Julie A. Simpson, Thein Cho, et al. "Postpartum Thiamine Deficiency in a Karen Displaced Population." *American Journal of Clinical Nutrition* 74 (December 2001): 808–813.

OTHER

American Society for Nutritional Sciences. http://www.nutrition.org.

Judith Turner
Rebecca J. Frey, PhD

Thrombus *see* **Blood clots**

Thromophlebitis *see* **Phlebitis**

Thrush *see* **Yeast infection**

Thuja

Description

Thuja is a general term for trees of the genus *Thuja*, which belongs to the Cupressaceae or cypress family. The most common species in North America are *Thuja occidentalis*, whose common names include arbor vitae or tree of life, white cedar, yellow cedar, American cedar, hackmatack, Thuia du Canada, swamp cedar, and Lebensbaum; and *Thuja plicata*, the Western **red cedar**. The species of cedar found in China and Japan is *Thuja orientalis*, and is known as ce bai ye or ya bai shu in Chinese.

Thujas are evergreen conifers, or cone-bearing trees. The name "Thuja" was given to this group of trees by the Swedish botanist Linnaeus in 1753; it comes from the Greek word *thuo*, which means "to sacrifice," as cedar wood was often burned with animal sacrifices by the ancients to add a pleasing aroma to the fire.

Thujas are evergreen conifers, or cone-bearing trees. *(Holmes Garden Photos / Alamy)*

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Abortifacient—A drug or preparation given to induce abortion.

Conifer—Any of several families of trees and shrubs, mostly evergreen, belonging to the order Coniferales, distinguished by bearing seeds and pollen in the form of dry scales arranged in a cone.

Emmenagogue—A medication or herbal preparation given to bring on a woman's menstrual period.

Expectorant—A medication or herbal preparation given to promote coughing, in order to bring up phlegm or other secretions from the upper respiratory tract.

Diuretic—A medication or preparation given to increase the body's output of urine.

Thujone—A natural compound found in the essential oils of cedar, wormwood, sage, mugwort, and clary. It is banned as a flavoring agent in the United States because of its neurotoxicity. Thujone is classified as a monoterpene ketone. It is insoluble in water, but can be dissolved in alcohol or chloroform.

Vermifuge—A medication or preparation given to expel worms and other intestinal parasites.

Volatile oil—Any plant oil that evaporates at room temperature and retains the odor of the plant from which it comes. Volatile oils are also called essential oils.

Thuja occidentalis is native to North America and grows in dense forests in southeastern Canada and the northeastern United States. American cedar trees grow to a height of about 60 ft (18.2 m), with trunks between 12 and 24 in (31 and 61 cm) in diameter. They are slow-growing trees, and prefer wet soils. American cedars are some of the oldest trees in northern woods; some are estimated to be at least 800 years old. *Thuja occidentalis* is conical in shape, with the lower branches almost horizontal to the ground and the upper branches more nearly vertical, forming a dense cone at the top of the tree. The leaves of the American cedar are bright green, opposite leaves that resemble overlapping scales, and give off a fragrant odor when crushed. The tiny yellow or greenish flowers appear between April and July. American cedar cones are pale green when young but turn a pale reddish-brown color as they mature.

The Western red cedar, or *Thuja plicata*, which is found from Alaska southward to the Pacific Northwest, Montana and Idaho, Alberta, and British Columbia, is similar in shape to *Thuja occidentalis*, except that it is a much taller tree, growing to a height of 150–200 ft (46–61 m). *Thuja orientalis*, on the other hand, is a short tree growing to a height of only 12–20 ft (4–6 m), and is sometimes used to form hedges, as it tolerates pruning. The Chinese cedar, however, is not as hardy as its North American counterparts.

Thuja is also the name for a homeopathic remedy made from *Thuja occidentalis*.

General use

Cedar trees in general have a long history of use for furniture and buildings as well as in various herbal remedies and **aromatherapy** preparations. According to the Old Testament, King Hiram of Tyre sent cedar wood from Lebanon to King Solomon for the construction of the Temple in Jerusalem. Cedar wood has also been used for centuries to line closets or make chests to protect clothing from moths. The fragrant wood was also used by Native Americans as well as the ancient Egyptians, Greeks, and Romans as an ingredient in incense blends.

In Western herbal medicine, cedar leaf oil was used as an emmenagogue, abortifacient, vermifuge, diuretic, and digestive aid. It was applied externally to relieve the pains of arthritis and rheumatism, to treat external **fungal infections** of the skin (ringworm and thrush), and to remove anal or **genital warts**. Native Americans used cedar leaf preparations to relieve **headache** and to prevent scurvy. Cedar leaves and twigs are in fact rich in **vitamin C**, and it was their effectiveness in preventing or treating scurvy that led to the tree's being called arbor vitae or tree of life. In addition, recent research has shown that extracts prepared from either *Thuja occidentalis* or *Thuja plicata* do in fact have antiviral, anti-inflammatory, and antibacterial properties. A group of German researchers reported in 2002 that an extract prepared from cedar leaf, alcohol, and water inhibits the reproduction of **influenza** virus type A, while a team of researchers in Japan found that an extract of Western red cedar was effective in treating **eczema**. Lastly, another group of Japanese researchers reported in 2003 that several compounds isolated from the stem bark of Japanese cedar appear to have significant antitumor activity.

In **traditional Chinese medicine**, the leaves and stems of *Thuja orientalis* are used to treat nervous disorders, **insomnia**, and heart palpitations, as well as to stop hemorrhages and bring down fevers. Traditional Chinese physicians also make a preparation of fresh cedar leaves steeped for seven days in a 60%

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

alcohol solution to promote hair growth. The mixture is rubbed on the bald spots three times daily.

The homeopathic preparation known as *Thuja* is made from the leaves of *Thuja occidentalis*, and is given to treat soft or bleeding **warts** on the chin, genitals, or anus. The most widely used homeopathic *materia medica*, or reference book, also recommends *Thuja* for headaches that feel like a nail is being driven into the head; vertigo brought on by standing up; emotional **depression** and restlessness; **pain** or **itching** in the scalp; painful swallowing or a feeling of obstruction in the throat; intense thirst at night or early in the morning; stomach cramps that are worse in the evening; difficulty in breathing combined with a violent thirst for cold water; frequent need to urinate, with frothy or cloudy urine; insomnia or restless sleep; or **fever** and **chills** that grow worse toward evening.

In aromatherapy, cedar leaf oil is classified as a base note, which means that it has a very long-lasting scent when added to a perfume or incense blend. One Canadian producer of essential oil advises, "... the scent is strong and should be used sparingly.... One small application is all you need!" It is considered to have a sedative or calming effect, and is recommended for treating **anxiety** states as well as **asthma**, **bronchitis**, and head colds. Some aromatherapists also recommend cedar leaf oil for treating **acne** and **dandruff**.

Cedar leaf oil is still used in some mainstream over-the-counter (OTC) preparations to relieve congestion in the upper respiratory tract. The best-known of these cold remedies is Vicks VapoRub(tm), which can be applied directly to the chest and covered with a hot towel, or added to a vaporizer to produce fragrant steam. Cedar leaf oil is also added to pest repellant sprays and paints to protect against mites, moths, and rodents. It is used to scent some brands of shoe polish, and is blended into some men's colognes, including Hugo Boss and Ralph Lauren's Safari.

Preparations

Most products used in Western medicine and aromatherapy that contain cedar oil are made with oil from the leaves and twigs of *Thuja occidentalis*. These parts of the tree yield about 1% volatile oil, which is about 65% thujone. The other components include fenchone, borneol, limonene, pinene, camphor, myrcene, a flavonoid known as thujin, and tannin. The essential oil is either clear or pale yellow in color. Most of the cedar leaf oil used in North America is made in Quebec by small family businesses; about 80% of their production is sold in the United States. The oil is extracted from the leaves by a process of steam distillation, cooled in an indirect contact heat exchanger, filtered, and stored in barrels for distribution to wholesalers.

According to a Canadian producer, essential oil from American cedar can be applied directly to picnic tables or outdoor furniture as a natural insect repellant, or to wooden drawers or closets to repel moths. A few drops of cedar leaf oil can also be added to a pail of warm water for damp-mopping hardwood floors. When the oil is used in aromatherapy, a few drops are mixed with several ounces of safflower or another vegetable oil for massages, or added to bath water for **hydrotherapy**. Essential cedar leaf oil should never be applied directly to the skin, as it can cause irritation. It should be mixed with softened beeswax or a mild cream if used externally to treat aching muscles or joints. A 1/2-oz bottle of the oil costs about $10 in health food stores.

For internal use as a diuretic or expectorant, Western herbalists recommend taking 1/4-tsp of liquid extract of cedar leaf in a glass of water three to six times a day. Alternately, an infusion can be prepared by adding 1 ounce of fresh cedar leaves to a pint of boiling water. The infusion is taken cold in 1-tbsp doses every three to six hours.

Homeopathic preparations of *Thuja* include pills, granules, and liquid dilutions, in potencies ranging from 3X to 50M. The cost of these preparations ranges from $5.99 for a half-ounce container of 3X pills to $43.69 for a 1-oz (28-g) bottle of 50M liquid dilution. Tinctures of *Thuja* are sold only to homeopathic practitioners, and cost around $8 for a 1-oz bottle. Boiron, a well-known manufacturer of homeopathic remedies, also offers a *Thuja* ointment for the treatment of external warts; a 1-oz (28-g) tube costs between $5.05 and $7.24, depending on the supplier.

Incense made from pure cedar or containing a mixture of cedar and other fragrances is available in stick or cone form for prices ranging between $1.49 and $5 for two to four ounces of incense.

Precautions

Herbal preparations for internal use that contain cedar leaf oil should not be used by pregnant women, as the oil may cause contractions of the uterus. In addition, anyone using the essential oil for external applications is advised to consult either a professional aromatherapist or their physician beforehand, as the high content of thujone in cedar leaf oil is a health concern. Thujone in pure form is a neurotoxin, which means that it affects the central nervous system in humans and other mammals. Absinthe, a liqueur

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

containing thujone derived from **wormwood**, can cause convulsions, hallucinations, and psychotic episodes. In addition to products containing thujone derived from wormwood, products made with cedar leaf oil have been investigated by the U. S. National Toxicology Program to make certain that workers involved in the manufacture of perfumes or other products scented with the oil were not at risk. The agency reported that the oil does not appear to be harmful to the skin or respiratory system under ordinary workplace conditions; all known instances of thujone poisoning since 1968 have been caused by drinking absinthe or undiluted **essential oils** of wormwood, **sage**, or cedar. With one exception, all these poisonings took place in France.

Side effects

No side effects have been reported from the use of perfumes, incense, aromatherapy products, pest repellants, or OTCs for external use that contain cedar leaf oil when used as directed. In addition, no side effects have been reported for homeopathic preparations containing *Thuja*.

Interactions

No interactions between products containing cedar oil and prescription medications have been reported.

Resources

BOOKS

Cummings, Stephen, MD, and Dana Ullman, MPH. *Everybody's Guide to Homeopathic Medicines*, revised ed. NY: G. P. Putnam's Sons, 1991.

Grieve, M., and C. F. Leyel, ed. *A Modern Herbal*, vol. 2. Mineola, NY: Dover Publications, Inc., 1971.

Price, Shirley. *Practical Aromatherapy*, 2nd ed. London: Thorsons, 1994.

Reid, Daniel P. *Chinese Herbal Medicine*. Boston: Shambhala, 1993.

PERIODICALS

Arima, Y., Y. Nakai, R. Hayakawa, and T. Nishino. "Antibacterial Effect of Beta-Thujaplicin on Staphylococci Isolated from Atopic Dermatitis: Relationship Between Changes in the Number of Viable Bacterial Cells and Clinical Improvement in an Eczematous Lesion of Atopic Dermatitis." *Journal of Antimicrobial Chemotherapy* 51 (January 2003): 113–122.

Bodinet, C., R. Mentel, U. Wegner, et al. "Effect of Oral Application of an Immunomodulating Plant Extract on Influenza Virus Type A Infection in Mice." *Planta Medica* 68 (October 2002): 896–900.

Iwamoto, M., T. Minami, H. Tokuda, et al. "Potential Antitumor Promoting Diterpenoids from the Stem Bark of *Thuja standishii*." *Planta Medica* 69 (January 2003): 69–72.

ORGANIZATIONS

Cèdres Recyclés. 60 Adrien Robert, Hull, Quebec, Canada J8Y 3S2. (819) 771-3446. Fax: (819) 771-0067. http://cedarleaf.org.

National Toxicology Program (NTP) Liaison and Scientific Review Office. P. O. Box 12233, MD A3-01, Research Triangle Park, NC 27709. (919) 541-0530. http://ntp-server.niehs.nih.gov.

Valley Cedar Leaf Oil. RR #5, Eganville, Ontario, Canada K0J 1T0. (613) 628-2892. http://www.valleycedarleafoil.com.

OTHER

National Toxicology Program (NTP). *Summary of Data for Chemical Selection Alpha-Thujone 546-80-5*. http://ntp-server.niehs.nih.gov/htdocs/Chem_Background/ExecSumm/Thujone.html.

Rebecca Frey

Thuja occidentalis see **Thuja**

Thunder god vine

Description

Thunder god vine (*Tripterygium wilfordii*) is the English translation of the Chinese name for the perennial plant *lei gong teng*. The plant grows in the mountains of China, as well as Taiwan and Myanmar (formerly Burma). It is a deciduous climbing vine that sheds its leaves, and produces white flowers and red fruit with three "wings." The plant's leaves, flowers, and outer skin of the root are poisonous. In fact, honey taken from the plant's pollen is also poisonous. The root pulp is the non-poisonous part, which is used medicinally. There is a risk of poisoning if the herb is not extracted properly.

The potentially dangerous aspects of this plant are reflected in two of its Chinese folk names, "Walk Seven Steps and Die" and "Intestine-Breaking Plant." In Asia, the plant is also called "three-wing-nut."

In ancient China, practitioners carefully extracted the portion of the thunder god vine used for treatment. They gathered roots in the summer or early fall. The poisonous bark was removed, and the inner portion of the root was utilized. In past centuries, this procedure may have involved grinding the root into a powder. The remedy usually was applied topically to the skin,

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Prednisone—A steroid, immune suppressing, anti-inflammatory medication used to treat the symptoms of rheumatoid arthritis, auto-immune, and many inflammatory conditions.

Rheumatoid arthritis—A painful autoimmune condition, with inflammation and swelling in the joints, somtimes accompanied by spasms in nearby muscles, and frequently resulting in loss of joint function. Rheumatoid arthritis occurs two to three more times in women than men.

since there was a risk of poisoning if thunder god vine was taken orally.

General use

Use of thunder god vine in **traditional Chinese medicine** dates back thousand of years. Ancient Chinese practitioners used the root of thunder god vine to treat a range of conditions including **rheumatoid arthritis**, swelling, skin **infections** and leprosy, **fever**, **boils**, and **chills**. However, practitioners were aware that the plant could be deadly. In fact, was likely used as a murder weapon. Farmers in Asia also used thunder god vine as an insecticide.

In the latter half of the twentieth century, interest again turned to the healing potential of thunder god vine. Research of the remedy included a double-blind trial performed in China during the 1980s. Among the researchers was physician Xue-Lian Tao, a former post-doctoral fellow at University of Texas Southwestern Medical Branch (UTSMB). In the study, the scientists and the research subjects (over 2,000 patients) did not know whether participants received the extract or a placebo. Patients reported that the remedy reduced the symptoms of rheumatoid arthritis.

Tao returned to the United States and continued research with Dr. Peter Lipsky, then-director of the Harold C. Simmons Arthritis Center at the University of Texas. Research in the United States focused on finding a safe dosage of thunder god vine, and locating the part of the plant that appeared to ease arthritis **pain**. Lipsky reported that in 1994 the team evaluated toxicity of the vine, and found "very little" toxicity, thus reducing the possibility of poisoning. They also saw the potential in the herbal remedy.

During the 1990s, researchers at UTSMB studied the plant's effectiveness in treating the symptoms of inflammatory conditions such as rheumatoid arthritis (RA). If thunder god vine is proven safe and effective for medical treatment of RA, researchers hope it may also be approved to treat other autoimmune conditions. These include lupus (a rheumatic condition that affects the skin and tissue, producing symptoms of rash, joint pain, and inflammation) and psoriasis—this inflammatory condition causes portions of the skin to raise, turn red, and scale. By 1998, the research team had developed a root extract from the plant that could be studied for its effectiveness in providing relief of arthritis symptoms. They named the extract "Texas Ethyl Acetate" (TEA), and applied to the United States Food and Drug Administration (FDA) for permission to test the extract on arthritis patients.

The FDA issued permission for the thunder god vine research using root extract. Studies were done through UTSMB and the National Institutes of Health (NIH). In 1999, Lipsky was named scientific director of NIH's National Institute of Arthritis and Muscoskeletal and Skin Diseases (NIAMS).

In 2002, NIAMS announced the results of a 20-week study involving 21 rheumatoid arthritis patients. Patients received a high-dose extract, low-dose extract, or a placebo. After four weeks, rapid improvement in symptoms was reported by 80% of those in the high-dose group, and in 40% of low-dose participants. There was no change was reported by people who took placebos. Lipsky rated the results as promising, saying that the extract slowed down an overactive immune system.

Response to the NIAMS study was generally positive. However, some scientists noted that the test group was small and the trial lasted only 20 weeks. Lipsky announced in 2002 that additional research was planned, using thunder god vine to treat RA and conditions such as lupus.

Prior to the NIAMS study, researchers imported thunder god vine root extract from China, where its medicinal use stretches back thousands of years. In 2002, after news of the NIAMS study was released, it was announced that Phytomedics Inc., a New Jersey biopharmaceutical company, was growing thunder god vine. Phytomedics Inc. renamed the extract "PMI-001," and announced plans to develop a botanical drug for the treatment of arthritis. The New Jersey-based company partnered with Pfizer, another pharmaceutical company, to manufacture the drug. As of 2008, the PMI-001 product had not been brought to the FDA.

Preparations

The remedy portion of thunder god vine is the vascular part of the root, the interior section consisting

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

of cells that carry water and food to the plant. The plant interior is dried and cut into pieces for processing.

Thunder god vine is available in the United States, where it has been advertised as a Chinese herb that may offer temporary relief for conditions such as aches, joint pain, colds, **fatigue**, **insomnia**, **stress**, and **anxiety**. The herbal remedy has been sold on the Internet, where a California business offers thunder god vine in pill form. The business recommended a daily dosage of two pills taken with warm water.

After UTSMB received approval from the FDA, researchers extracted the active ingredient from the plant. The process involved extracting ethanol and acetate from the root. The extract powder was then packaged into capsules.

According to the Arthritis Foundation, some research participants took a daily dosage of 30 milligrams of thunder god vine extract.

Precautions

No standard, safe dosage of thunder god vine had been established. The herb's use as a diet supplement has not been evaluated for safety or content of the product. Herbal supplements are not regulated by the FDA; therefore, ordering this product carries risks. The consumer has no assurance about the strength of the dosage or the portion of the plant used to make the supplement.

In the United States, thunder god vine cannot be marketed as a drug until it receives FDA approval, a process that includes evaluation of a product for safety and effectiveness. This preliminary review is not required for herbs marketed as diet supplements. However, the FDA can stop the sale of supplements determined to be unsafe.

The leaves and flowers of thunder god vine are very toxic and may cause death. Extreme caution in purchasing is advised to ascertain that the supplement is a proper extraction made only from the interior of the plant root.

Side effects

Thunder god vine is toxic and could be lethal if not properly extracted.

In the Chinese 1980s double-blind trial, some people experienced **diarrhea** and related gastrointestinal disturbances. Tao reported that those side effects disappeared as people continued treatment. Moreover, side effects in the NIAMS study were described as "minor."

According to the Arthritis Foundation, possible side effects of thunder god vine include upset stomach and skin reactions. Men may experience temporary **infertility**, while women may have a lack of **menstruation** (**amenorrhea**).

Interactions

People taking immunosuppressive drugs such as prednisone should not use thunder god vine.

Resources

PERIODICALS

Balick, Michael J., and Roberta Lee. "Digging in the Herb Garden: Responding to a Patient's Query About Thunder God Vine." *Alternative Therapies* (November/December 2001): 100–3.

OTHER

DeNoon, Daniel. "Chinese Herb May Ease Arthritis." (August 13, 2002. *WebMD* [cited April 30, 2004]. http://www.my.webmd.com.

Freeman, Elizabeth. "Chinese Thunder God Vine Gives Relief from Rheumatoid Arthritis Symptoms." National Institute of Arthritis and Musculoskeletal and Skin Diseases. October 2002. [cited April 30, 2004]. http://www.niams.nih.gov/ne/highlights/spotlight/2002/thunder.htm.

National Institute of Arthritis and Musculoskeletal and Skin Diseases. [cited April 30, 2004]. http://www.niams.nih.gov.

Phytometics Inc. [cited April 30, 2004]. http://www.phytometics.com.

United States Food and Drugs Administration. [cited April 30, 2004]. http://www.fda.gov.

University of Texas Southwestern Medical Center. [cited April 30, 2004] http://www.swmed.edu.

Liz Swain

Thyme

Description

Thyme (*Thymus vulgaris L.*) known as garden thyme, and *T. serpyllum*, known as creeping thyme, mother of thyme, wild thyme, and mountain thyme, are two similarly beneficial evergreen shrubs of the Labiatae or mint family. The aromatic thyme is a perennial native of southern Europe and the western Mediterranean. Thyme is extensively cultivated, both commercially and in home gardens, as a culinary and medicinal herb. There are hundreds of species of thyme.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Thyme. *(© Arco Images / Alamy)*

Garden thyme grows from a woody, fibrous root to produce thin, erect, stems up to 15 in (38 cm) high. It is most commonly cultivated for its culinary uses. Wild thyme is found growing on heaths, in sheep pastures, and mountainous areas in temperate regions. It was probably introduced to North America by European colonists, and has escaped cultivation. Wild thyme produces long, low-lying, sprawling and creeping stems. This habit inspired the designation *serpyllum* referring to the serpent-like growth of the species. Thyme has tiny, narrow, gray-green leaves that grow in opposite pairs on the square, woody stems. The edges of the stalkless, slightly hairy leaves are rolled inward. The blossoms may be white to rose colored or a blue to purple hue, depending on the species and variety. Flowers are tiny and tubular and grow in terminal clusters up to 6 in (15.2 cm) long. Flowering time is mid-summer. Seeds are minuscule and abundant. Thyme thrives in sunny locations on dry, stony banks and heaths. The aromatic herb attracts bees that produce a uniquely flavored honey from the herb. It also acts to repel whiteflies.

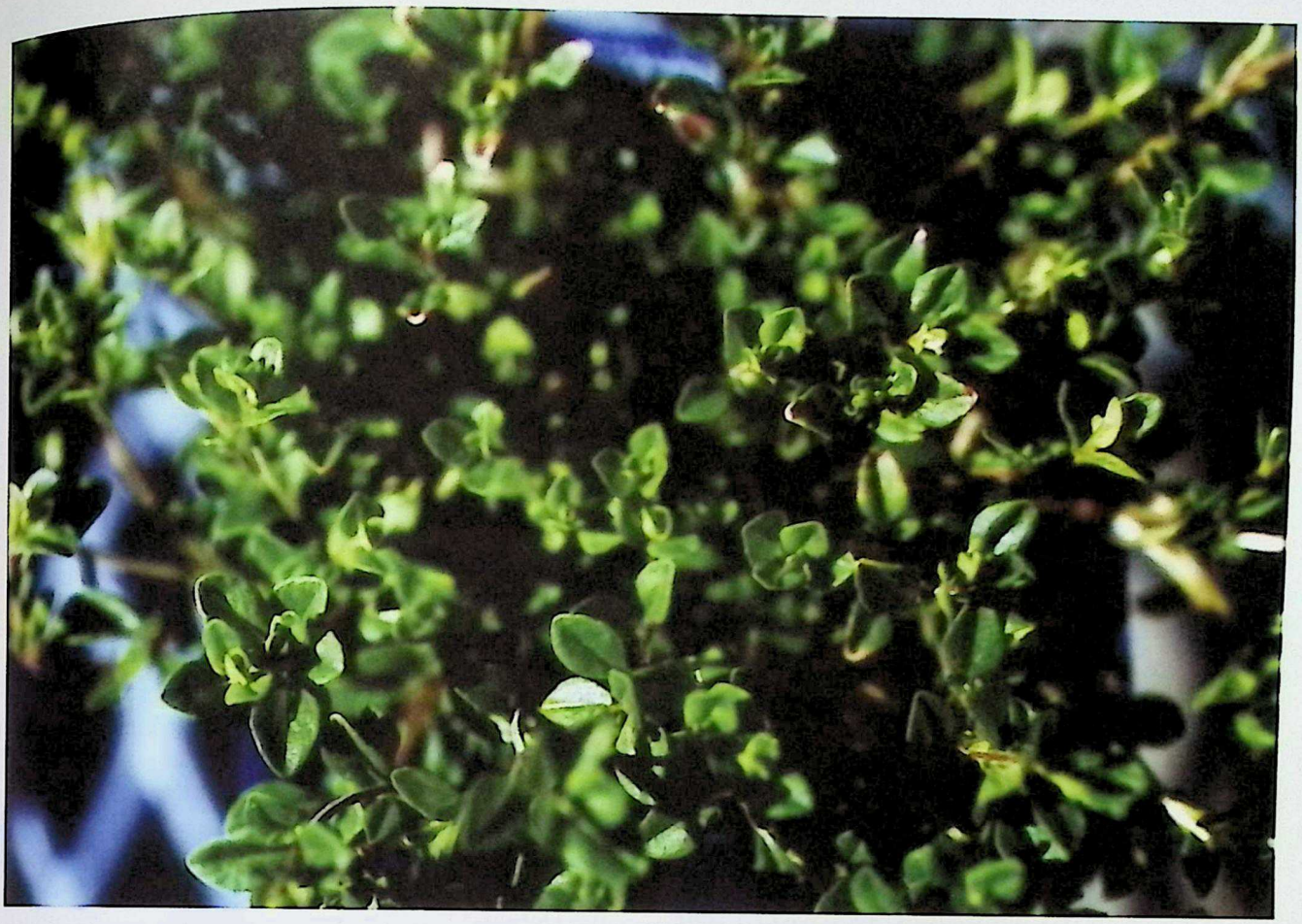
Thyme has been known since ancient times for its magical, culinary, and medicinal virtues. Tradition held that an infusion of thyme taken as a tea on mid-summer's eve would enable one to see the fairies dancing. Young women wore a corsage of blossoming thyme to signal their availability for romance. The generic name may have been inspired by one of thyme's traditional attributes. Greek folk herbalists believed that thyme would impart courage (*thumus* in Greek) to those who used the herb, particularly soldiers. Greek men particularly liked the pungent scent of thyme and would rub the herb on their chests. The Roman people believed that adding thyme to bath water would impart energy. They also included thyme in bedding to chase melancholy and to prevent nightmares. The strong scent of thyme was employed as a moth repellent, and burned as fumigating incense. The philosopher-herbalist Pliny the **Elder** recommended burning the dried herb in the house to "put to flight all venomous creatures." In the kitchen thyme has been used for centuries to season sauces, soups, stuffing, and soups. Thyme has long been recognized for its antiseptic properties. The Egyptians used the herb in formulas for embalming the dead. The herb was among those burned in sickrooms to help stop the spread of disease. The oil of thyme was used on surgical dressings and in times of war, as recently as World War I, to treat battle **wounds**.

General use

The fresh and dried leaf, and the essential oil extracted from the fresh flowering herb, are medicinally potent. Thyme is one of the most versatile herbs for use in home remedies. It is aromatic, antiseptic, diaphoretic (increases perspiration), analgesic, antispasmodic, and diuretic. It acts as an emmenagogue (increases menstrual discharge), carminative (expels **gas**), and stimulant. Thyme's essential oil contains the crystalline phenol known as thymol, a powerful and proven antibiotic and disinfectant that enhances the immune system and fights infection. The aromatic and medicinal strength of the essential oil varies with the species harvested. The essential oil exerts a swift and effective action against bacteria. With external application, the essential oil is especially good for maintaining the health of the teeth and gums and relieving **toothache**. An ointment made with the essential oil is used to disinfect **cuts** and wounds, and is effective against the fungi that cause athletes' foot. As a massage oil, thyme can relieve rheumatism, **gout**, and **sciatica** (**pain** along the course of a sciatic nerve, especially in the back of the thigh). As an ingredient in

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri



Thyme plant. *(Photo by Kelly Quin. Reproduced by permission.)*

a lotion used as a chest rub, thyme will help break up catarrh (inflammation of the mucous membrane) of the upper respiratory tract. A strong decoction of the leaves and flowers, added to the bath water, will stimulate circulation. When used as a hair rinse, combined with a scalp massage, the herb decoction may help to prevent **hair loss**.

Taken internally as an infusion or syrup, thyme is an effective remedy for ailments of the respiratory, digestive, and genitourinary systems. The herb relaxes the bronchial muscles, helping to quell dry coughs. The warm infusion can relieve **migraine headache**, **colic**, and flatulence, promote perspiration, and expel **worms**. A strong decoction, sweetened with honey, is good for easing the spasms of **whooping cough** and expelling catarrh. The infused herb can be used as a gargle for **sore throat**. Taken warm, thyme tea will bring relief for menstrual pain, and relieve **diarrhea**. Thyme has an antioxidant effect and is a good tonic and digestive tea. The phytochemicals (plant chemicals) in thyme include tannins, **bitters**, essential oil, terpenes, flavonoids, and saponins.

Preparations

The aerial parts of thyme can be harvested before and during flowering. The leaves should be removed from the woody stems and placed in single layers on a paper-lined tray in a warm, airy room, out of direct sunlight, or hung to dry in bunches in a shady location. The dried leaf should be stored in dark glass, tightly sealed, and clearly labeled containers. Thyme can also be frozen for later use.

Infusion: Two ounces of fresh thyme leaf (less if dried) are placed in a warmed glass container, and 2.5 cups of fresh, nonchlorinated, boiling water are added to the herbs. Twice as much herb is used in preparing an infusion for use as a gargle or bath additive. The tea should be covered and infused from 10-30 minutes, depending on the strength desired. After straining, the prepared tea will store for about two days in the refrigerator. Thyme tea may be enjoyed by the cupful as a tonic beverage taken after meals up to three times a day.

Tincture: Four ounces of finely-cut fresh or powdered dry herb are combined with 1 pt of brandy, gin, or vodka in a glass container. There should be enough

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Flavonoids—A group of aromatic compounds that includes many pigments. As a group, they are considered antioxidants.

Tannins—Plant substances used in dyeing and tanning.

Terpenes—Hydrocarbons found especially in essential oil.

Saponins—Glucosides that occur in plants and produce a soapy lather.

alcohol to cover the plant parts and have a 50:50 ratio of alcohol to water. The mixture is stored away from light for about two weeks, and needs to be shaken several times each day. The mixture is strained and then stored in a tightly-capped, dark glass bottle. A standard dose is one-half to one teaspoon of the tincture, taken in hot water, up to three times a day.

Essential oil: Commercial extracts of the essential oil of thyme are available. These are not to be taken internally. The essential oil must be diluted in water or vegetable oil, such as almond or sunflower oil, before applying to minimize the toxicity. The oil contains thymol, a component in many commercially available antiseptics, mouthwash, toothpaste, and gargle preparations. It is antibacterial and antifungal.

Precautions

Very small amounts of thyme used in culinary preparations are generally safe. In large amounts, thyme acts as a uterine stimulant. Pregnant women should not use the herb, tincture, or the essential oil of thyme.

Excessive use of the undiluted essential oil is toxic. If the oil is ingested, it may cause gastrointestinal distress such as diarrhea, **nausea**, and **vomiting**. Other adverse toxic effects may include **headache**, muscular weakness, and **dizziness**. The oil of thyme may act to slow the heartbeat, depress respiration, and lower body temperature. Applied externally in undiluted form the essential oil may cause skin irritation. The oil should be diluted before use.

Side effects

The U. S. Food and Drug Administration (FDA) has rated thyme as "food safe." The *PDR For Herbal Medicine* lists "No health hazards or side effects" when the herb is properly administered in designated therapeutic dosages.

Interactions

None reported.

Resources

BOOKS

Duke, James A., Ph.D. *The Green Pharmacy*. Pennsylvania: Rodale Press, 1997.

Elias, Jason, and Shelagh Ryan Masline. *The A to Z Guide to Healing Herbal Remedies*. Lynn Sonberg Book Associates, 1996.

Foster, Steven, and James A. Duke. *Peterson Field Guides, Eastern/Central Medicinal Plants*. Boston-New York: Houghton Mifflin Company, 1990.

Gibbons, Euell. *Stalking The Healthful Herbs, Field Guide Edition*. New York: David McKay Company, Inc., 1974

Hutchens, Alma R. *A Handbook Of Native American Herbs*. Boston: Shambhala Publications, Inc., 1992.

Kowalchik, Claire, and William H.Hylton. *Rodale's Illustrated Encyclopedia of Herbs*. Pennsylvania: Rodale Press, 1987

Lust, John. *The Herb Book* New York: Bantam Books, 1974.

Magic And Medicine of Plants. The Reader's Digest Association, Inc. 1986.

McIntyre, Anne. *The Medicinal Garden*. New York: Henry Holt and Company, Inc., 1997.

Meyer, Joseph E. *The Herbalist*. Clarence Meyer, 1973.

Ody, Penelope. *The Complete Medicinal Herbal*. New York: Dorling Kindersley, 1993.

PDR for Herbal Medicines. New Jersey: Medical Economics Company, 1998.

Phillips, Roger, and Nicky Foy. *The Random House Book of Herbs*. New York: Random House, Inc., 1990.

Polunin, Miriam, and Christopher Robbins. *The Natural Pharmacy*. New York: Macmillan Publishing Company, 1992.

Prevention's 200 Herbal Remedies. Pennsylvania: Rodale Press, Inc., 1997.

Schar, Douglas. *The Backyard Medicine Chest, An Herbal Primer*. DC: Elliott & Clark Publishing, 1995.

Thomson, M.D., William A. R. *Medicines From The Earth, A Guide to Healing Plants*. San Francisco: Harper & Row, 1978.

Tyler, Varro E., Ph.D. *Herbs Of Choice, The Therapeutic Use of Phytomedicinals*. New York: The Haworth Press, Inc., 1994

ORGANIZATIONS

National Association of Holistic Aromatherapy. 836 Hanley Industrial Court, St. Louis, MO 63144. 888-ASK-NAHA. http://www.naha.org.

Clare Hanrahan
Teresa G. Odle

TIA *see* **Stroke**

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Tibetan medicine

Definition

Tibetan medicine differs from allopathic medicine in that it has no concept of "illness" as such, but rather the concept is of "disharmony" of the organism. Accordingly, this system of medicine, like many alternative therapies, seeks to achieve a harmony of the self.

Medicine is one of five branches of Tibetan science, and is known to the Tibetans as gSoba Rig-pa—the science of healing. The Tibetan pharmacopoeia utilizes many different elements in the treatment of disease, such as trees, rocks, resins, soil, precious metals, sap, and so on, but like Chinese medicine, to which it is related, it mainly relies on herbs for treatment.

Origins

Tibetan medicine, like its relative Chinese medicine, is an ancient art that has become associated with many legends and is surrounded by a shroud of mysticism. Although Tibetan culture is more recent, Tibetan medical practices can be traced back over 2,500 years. It is now practiced in secret or by those in exile since communist rule has suppressed it in its country of origin.

The treatise of Tibetan medicine, which can be described as a manual compiled over thousands of years, is called the "Chzud-shi." In addition to the medical theory, this manual also incorporates the Tibetan pharmacopoeia.

Benefits

Tibetan medicine has been particularly successful at treating chronic conditions such as rheumatism, arthritis, ulcers, digestive problems, **asthma**, hepatitis, **eczema**, liver disorders, sinus problems, emotional disorders and nervous system problems. Like many alternative therapies, it is a holistic therapy that treats the whole person and encourages a healthy way of life that will promote well being at all levels.

Description

Harmony and the balance of all aspects of the human organism are the concepts that form the basis for Tibetan medicine. The three elements that must be kept in harmony are known collectively as the Nyipa sum, and they are rLung, mKhris-pa, and Bad-kan. It is said that the Tibetan words describing their medicine are very difficult to translate, rather an explanation of the meaning is attempted. Desire, hatred, and delusion are considered to be very harmful influences affecting this harmony, and illustrate the close connection between the Tibetan medical art and Buddhist teachings.

KEY TERMS

Decoction—To extract the water-soluble substances in a drug or medicinal herb by boiling.

Pharmacopoeia—A reference book containing a list of medicinal substances used by a particular medical stream or area.

rLung is considered to be a "subtle flow of energy" that is most closely connected with the "air" element. However, since all five elements; earth, water, fire, air and space, in addition to the concept of "hot" and "cold" play a complex role in the health of the individual, this is no simple matter. All elements and aspects are held to be interdependent.

Types of rLung:

- *Srog-'dzin* (life-grasping rLung). Located in the brain, governs swallowing of food, breathing, spitting, sneezing, and the clearing and steadying of the mind.
- *Gyen-rgyu* (rLung moving upwards). Located in the chest, it governs speech, physical vigor, general health, and appearance of skin.
- *Khyab-byed* (all pervading rLung). Located in the stomach, it governs digestion, metabolism, and the seven physical sustainers referred to as lus-zung dhun.
- *Thur-sel* (downward cleansing rLung). Located in the rectum, it governs the elimination of waste products and reproductive fluids in addition to the birth process (for women).

Types of mKhris-pa:

- *mKhris-pa* is the heat of human nature, related to fire, described as oily, sharp, hot, light, pungent and moist. Its major function is to balance body temperatures. Governs hunger and thirst, and regulates skin condition. There are five types of mKhris-pa.
- *Ju-byed.* This is located between the stomach and the intestine. Governs digestion and assimilation, providing heat and energy.
- *SGrub-byed.* Located in the heart. Responsible for anger, aggression, and hatred, and is considered to lead to desire, achievement, and ambition.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

- *mDangs-sgur*. Located in the liver, it is responsible for maintaining and promoting color and essential components of blood.
- *mThong-byed*. Located in the eye, it governs vision.
- *mDog-sel*. Located in the skin, it governs skin appearance and texture.

Types of Bad-kan:

- *rTen-byed* (supporting Bad-kan). Located in the chest, plays a supporting role to the other four types of Bad-kan.
- *Myag-byed* (mixing Bad-kan). Located in the upper half of the body. Mixes nutrients (liquids and solids).
- *Myong-byed* (experiencing Bad-kan). Located in the tongue, governs experience of taste.
- *Tsim-byed* (satisfaction Bad-kan). Located in the head. Governs the five senses and responsible for heightening their power.
- *Byor-byed* (joining Bad-kan). Located in the joints, it is considered responsible for their flexibility.

When these components of Nyipa sum are balanced, the seven bodily sustainers will also be in harmony. They are essential nutrients, blood, muscle tissue, fat, bone, marrow, and reproductive fluids.

Diagnosis

A practitioner of Tibetan medicine will employ several diagnostic tools. Chief of these is a very complicated system of pulse reading, which involves 13 different positions, with a possibility of over 300 different readings. This is similar to traditional Chinese medicine and **Ayurvedic medicine**. The pulse is likened to a messenger between doctor and patient. For this diagnosis to be efficient, it is necessary for the patient to be rested and relaxed.

Another tool of diagnosis is observation, which consists of urine analysis and examining the tongue. To examine the urine, a physician will assess the color, vapor, odor, bubbles, sediments, and albumin content. The color of urine is determined by food and drink, the seasons, and whatever diseases the patient suffers from.

The final tool of diagnosis is questioning. The physician will ask specific questions of his patient, and will include questions such as how and when the illness started, where **pain** is felt, and if the condition is affected by foods eaten.

Treatment

Treatment is divided into four categories, which are dietary advice, lifestyle recommendations, the prescription of medicine, and if necessary, surgical procedures, according to the type of patient. Treatment proceeds in this order, according to the seriousness of the disorder. For example minor problems are considered to need merely a reassessment of dietary habits, but only in the most serious cases will surgery be considered.

Preparations

A Tibetan physician prescribes medicines and recommends surgery as a last resort. When it is necessary, the prescription is likely to be made up from certain herbs in the form of a decoction, powder, or pills. The prescription will be made up at one of the branches of the Tibetan Medical Institute specifically for each patient.

Precautions

The qualifications of any physician should be checked before treatment proceeds.

Side effects

As a natural therapy, Tibetan medicine, if administered correctly, is not known to be associated with any side effects. According to their medical treatise, one of the criteria for medical prescriptions is that it should be absolutely harmless.

Research and general acceptance

The Tibetan system of medicine has roots in medical practices over 2,500 years old, so it can be considered well researched. Despite the communist crackdown in Tibet, and the oppression and persecution of their physicians, the Tibetan people still prefer to seek the advice of a traditional physician rather than take advantage of "new" systems of medicine recently introduced.

In 1994, the Natural Medicine Research Unit, (NMRU) of Hadassah University Hospital in Jerusalem began double-blind, randomized clinical trial of Tibetan herbal formulas which have been on sale in Switzerland for more than seventeen years. Previous trials had already demonstrated the harmlessness of these formulas. The aim of the unit is to compile a database of Tibetan formulas.

Training and certification

The headquarters of the main Tibetan medical institute is now in Dharamsala in northern India. Tibetan medicines are also manufactured there. The minimum period of training for a Tibetan physician is seven years. The first five years mainly consists of theoretical training, and for the sixth and seventh

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

years, medical students are sent for a period of practical training under a senior physician at one of the Institute's branches, of which there are over 30 in India and Nepal.

Resources

BOOKS

Clark, Barry, ed. *The Quintessence Tantras of Tibetan Medicine*. Snow Lion Publications, 1995.

Donden, Yeshi. *Healing from the Source*. Snow Lion Publications, 2000.

ORGANIZATIONS

The official Website of the exiled Tibetan government. http://www.tibet.com/Med_Astro/tibmed.html.

OTHER

World around BaiKal. http://www.pitt.edu/~jpc7/baikal/5.htm.

Patricia Skinner

Tineas pedis *see* **Athlete's foot**

Tinnitus

Definition

Tinnitus is a condition where the patient hears ringing, buzzing, or other sounds without an external cause. Patients may experience tinnitus in one or both ears or in the head.

Description

Tinnitus affects as many as 40 million adults in the United States. It is defined as either objective or subjective. In objective tinnitus, the doctor can hear the sounds, as well as the patient. Objective tinnitus is typically caused by tumors, turbulent blood flow through malformed vessels, or by rhythmic muscular spasms. Most cases of tinnitus are subjective, which means that only the patient can hear the sounds.

Causes and symptoms

Subjective tinnitus is frequently associated with **hearing loss** and damage to the cochlea, or the inner ear. About 90% of patients have sensorineural hearing loss; 5% suffer from conductive hearing loss; 5% have normal hearing.

The causes of subjective tinnitus include:

- impacted ear wax
- ear infections

A patient with tinnitus hears ringing, buzzing, or other sounds without an external cause. *(© ACE STOCK LIMITED / Alamy)*

- hardening of the structures of the inner ear
- hearing loss related to age
- prolonged exposure to excessive noise
- ototoxic medications, including aspirin, quinine, some diuretics, heavy metals, alcohol, and certain antibiotics
- Ménière's syndrome
- head trauma
- systemic diseases, including syphilis, hypertension, anemia, or hypothyroidism
- tumors of the ear

Diagnosis

Diagnosis of tinnitus includes a physical examination of the patient's head and neck. The doctor will use an instrument called an otoscope to examine the ears for wax, infection, or structural changes. He or she will

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

also use a stethoscope to listen to the blood vessels in the neck.

The patient's doctor may also refer him or her to an audiologist, who is a health care professional trained to perform diagnostic testing of hearing problems.

In some cases, tinnitus is a symptom of temporomandibular joint disorder, or TMJ, which is caused by dysfunction of the temporomandibular joint in the jaw. The muscles and nerves in the jaw are located very close to the nerves that control hearing, which is why TMJ can cause tinnitus. Patients with tinnitus may be referred to a dentist or orthodontist for assessment of their jaw muscles or a misaligned bite.

Additional tests may include the following:

Tuning fork tests

The Rinne and Weber tests are commonly used to evaluate the type and severity of hearing loss. In the Weber test, the doctor holds a tuning fork against the patient's forehead or front teeth. If the hearing loss is sensorineural, the sound radiates to the ear with better hearing; if the hearing loss is conductive, the sound will be louder in the damaged ear. In the Rinne test, the tuning fork is placed alternately on the mastoid bone, which is behind the ear, and then in front of the ear. In conductive hearing loss, bone conduction (BC) is greater than air conduction (AC). In sensorineural hearing loss, AC is greater than BC.

Diagnostic imaging

Magnetic resonance angiography or venography (MRA and MRV) can be used to evaluate malformations of the blood vessels. Computed tomography scans (CT scans) or magnetic resonance imaging scans (MRIs) can be used to locate tumors or abnormalities of the brain stem.

Blood tests

The doctor may order a complete blood count (CBC) with specific antibody tests to rule out **syphilis** or immune system disorders.

Treatment

Dietary adjustments, including the elimination of coffee and other stimulants, may be useful in treating tinnitus. In addition, reducing the amount of fat and **cholesterol** in the diet can help improve blood circulation to the ears. Nutritional supplementation with **vitamin C**, **vitamin E**, B vitamins, **calcium**, **magnesium**, **potassium**, and **essential fatty acids** is also recommended.

KEY TERMS

Audiologist—A health care professional who performs diagnostic testing of impaired hearing.

Cochlea—The hearing part of the inner ear. This snail-shaped structure contains fluid and thousands of microscopic hair cells tuned to various frequencies, in addition to the organ of Corti (the receptor for hearing).

Conductive hearing loss—Hearing loss caused by loss of function in the external or middle ear.

Ménière's syndrome—A disease of the inner ear, marked by recurrent episodes of loss of balance (vertigo) and roaring in the ears lasting several hours. Its cause is unknown.

Ototoxic—Damaging to the nerves controlling the senses of hearing and balance.

Sensorineural hearing loss—Hearing loss caused by damage to the nerves or parts of the inner ear that control the sense of hearing.

In particular, **zinc** supplements have been recommended for patients diagnosed with tinnitus. A recent Turkish study has confirmed that older people whose **diets** have been deficient in zinc may benefit from supplements of this mineral as a treatment for tinnitus, but that younger patients eating well-balanced dietsdo not find that their symptoms improve when they take zinc supplements. The American Tinnitus Association comments that zinc supplements "... generally carry little risk to health and some people find them helpful."

Gingko biloba, an herbal extract, has been shown to decrease tinnitus symptoms in controlled animal studies and may be helpful in treating humans, since it is believed to enhance circulation to the brain in situations where reduced circulation is the cause. Individuals taking such blood thinners as coumadin or heparin should not take *Ginkgo biloba,* as the herb can interfere with platelet activating factor, the chemical that enables blood to clot.

Acupuncture treatments may help decrease the level of tinnitus sounds the patient hears, and constitutional homeopathic treatment may also be effective. Some Chinese herbal treatments can be effective, as well.

Tinnitus Retraining Therapy, or TRT, has been successful in treating some subjective tinnitus patients. This therapy is based on the assumption that the severity of tinnitus is determined not by the patient's auditory system, but by the parts of the brain that

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

control emotion (the limbic system) and body functions (autonomic nervous system). TRT focuses on habituating the patient to his or her tinnitus, retraining the brain to, in effect, "become used to" the tinnitus so that it does not perceive it as an annoyance.

Allopathic treatment

Some cases of tinnitus can be treated by removal of the underlying cause. These include surgical treatment of impacted ear wax, tumors, head injuries, or malformed blood vessels; discontinuance of ototoxic medications; and antibiotic treatment of **infections**.

Patients whose tinnitus is related to TMJ usually experience improvement in or complete disappearance of the tinnitus when the dental problem is corrected.

Subjective tinnitus, especially that associated with age–related hearing loss, can be treated with hearing aids, noise generators or other masking devices, **biofeedback**, antidepressant medications, or lifestyle modifications.

One mainstream form of **psychotherapy** that is recommended to patients with tinnitus is cognitive-behavioral therapy, or CBT. CBT works by changing the patient's emotional reaction to the tinnitus. The patient keeps a symptom diary and works on an individual basis with a counselor to identify negative thought patterns and behaviors related to the tinnitus and then changes them. The latest innovation in CBT for tinnitus is therapy via the Internet. According to a 2002 study by a group of Swedish researchers, 31% of patients who participated in a CBT program via the Internet reported significant relief from tinnitus at 1-year follow-up.

Expected results

The prognosis depends on the cause of the tinnitus and the patient's emotional response. Most patients with subjective tinnitus do not find it seriously disturbing, but about 5% have strong negative feelings. These patients are frequently helped by instruction in **relaxation** techniques.

Studies indicate that CBT is most effective as a treatment for tinnitus when it is combined with masking techniques or medication.

Prevention

One preventive measure is to wear earplugs when operating loud machinery or spending extended periods in such noisy environments as rock concerts. Prolonged exposure to noises of 90 decibels (about as loud as a running blender) or higher can cause permanent hearing loss and tinnitus. In some cases a change of occupation may be advisable; a recent British study found that as many as 266,000 men and 84,000 women in the United Kingdom between the ages of 35 and 64 suffer from tinnitus resulting from work-related noise.

More detailed information and advice on dealing with tinnitus associated with noise-induced hearing loss is available from the National Institute on Deafness and Communication Disorders (NIDCD), listed under Resources below.

Resources

BOOKS

House, John W. "Tinnitus." In *Conn's Current Therapy*, edited by Robert E. Rakel. Philadelphia: W. B. Saunders, 1998.

Jackler, Robert K., and Michael J. Kaplan. "Ear, Nose, & Throat." In *Current Medical Diagnosis & Treatment 1998*, edited by Lawrence M. Tierney, Stephen J. McPhee, and Maxine Papadakis. Stamford, CT: Appleton & Lange, 1997.

Pelletier, Kenneth R., MD. *The Best Alternative Medicine*, Part II, "CAM Therapies for Specific Conditions: Tinnitus." New York: Simon & Schuster, 2002.

"Tinnitus." Section 7, Chapter 82 in *The Merck Manual of Diagnosis and Therapy*, edited by Mark H. Beers, MD, and Robert Berkow, MD. Whitehouse Station, NJ: Merck Research Laboratories, 2001.

PERIODICALS

Andersson, G., T. Stromgren, L. Strom, and L. Lyttkens. "Randomized Controlled Trial of Internet-Based Cognitive Behavior Therapy for Distress Associated with Tinnitus." *Psychosomatic Medicine* 64 (September-October 2002): 810–816.

Delb, W., R. D'Amelio, C. J. Boisten, and P. K. Plinkert. "Evaluation of the Tinnitus Retraining Therapy as Combined with a Cognitive Behavioral Group Therapy" [in German] *HNO* 50 (November 2002): 997–1004.

Henry, J. A., M. M. Jastreboff, P. J. Jastreboff, et al. "Assessment of Patients for Treatment with Tinnitus Retraining Therapy." *Journal of the American Academy of Audiology* 13 (November-December 2002): 523–544.

Jastreboff, P.J., W.C. Gray, and S.L. Gold. "Neurophysiological Approach to Tinnitus Patients." *American Journal of Otology* 17 (1996): 236–240.

Palmer, K. T., M. J. Griffin, H. E. Syddall, et al. "Occupational Exposure to Noise and the Attributable Burden of Hearing Difficulties in Great Britain." *Occupational and Environmental Medicine* 59 (September 2002): 634–639.

Schechter, M. A., and J. A. Henry. "Assessment and Treatment of Tinnitus Patients using a 'Masking Approach.'" *Journal of the American Academy of Audiology* 13 (November-December 2002): 545–558.

Yetiser, S., F. Tosun, B. Satar, et al. "The Role of Zinc in Management of Tinnitus." *Auris Nasus Larynx* 29 (October 2002): 329–333.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

ORGANIZATIONS

American Academy of Audiology. 11730 Plaza America Drive, Suite 300, Reston, VA 20190. (703) 790-8466. www.audiology.org.

American Tinnitus Association. P.O. Box 5, Portland, Oregon 97207-0005. (800) 634-8978 or (503) 248-9985. www.ata.org.

Better Hearing Institute. 515 King Street, Suite 420, Alexandria, VA 22314. (703) 684-3391.

National Institute on Deafness and Other Communication Disorders (NIDCD), National Institutes of Health. 31 Center Drive, MSC 2320. Bethesda, MD 20892-2320. www.nidcd.nih.gov.

Vestibular Disorders Association (VEDA). PO Box 4467, Portland, OR 97208-4467. (800) 837-8428. www.vestibular.org.

OTHER

National Institute on Deafness and Other Communication Disorders (NIDCD). *Noise-Induced Hearing Loss.* Bethesda, MD: NIDCD, 2002. NIH Publication No. 97-4233. www.nidcd.nih.gov/health/hearing/noise/asp.

Paula Ford-Martin
Rebecca J. Frey, PhD

TMJ *see* **Temporomandibular joint syndrome**

Tocopherol *see* **Vitamin E**

Tomatis method *see* **Auditory integration training**

Tongue diagnosis *see* **Traditional Chinese medicine**

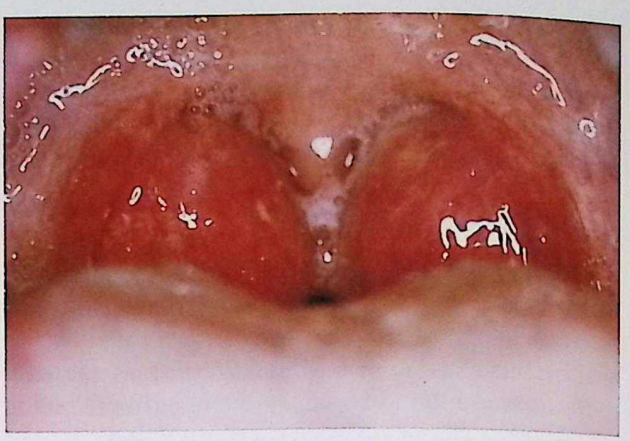
Tonsillitis

Definition

Tonsillitis is an infection and swelling of the tonsils, which are oval-shaped masses of lymph gland tissue located on both sides of the back of the throat.

Description

The tonsils normally help to prevent **infections**. They act like filters to trap bacteria and viruses entering the body through the mouth and sinuses. The tonsils also stimulate the immune system to produce antibodies which fight off infections. Anyone can have tonsillitis; however, it is most common in children between the ages of five and 10 years.



Acute tonsilitis. *(Biophoto Associates / Photo Researchers, Inc.)*

Causes and symptoms

Tonsillitis is caused by viruses or bacteria that cause the tonsils to swell and become inflamed. A mild or severe **sore throat** is one of the first symptoms of tonsillitis. Symptoms can also include **fever**, **chills**, lethargy, muscle aches, **earache**, **pain** or discomfort when swallowing, and swollen glands in the neck. Young children may be fussy and stop eating. When a doctor or nurse looks into the mouth with a otoscope, the tonsils may appear swollen and red. Sometimes, they will have white or yellow spots and a thin mucous coating. Symptoms usually last four to six days.

Diagnosis

The diagnosis of tonsillitis is made from the visible symptoms and a physical examination of the patient. The doctor will examine the eyes, ears, nose, and throat, looking at the tonsils for signs of swelling, redness, or a discharge. A careful examination of the throat is necessary to rule out diphtheria and other conditions which may cause a sore throat. Since most sore throats in children are caused by viruses rather than bacteria, the doctor may take a throat culture or rapid diagnostic test in order to test for the presence of streptococcal bacteria. A throat culture is performed by wiping a cotton swab across the tonsils and back of the throat and sending the swab to a laboratory for culturing. *Streptococcus pyogenes*, the bacterium that causes **strep throat**, is the most common disease agent responsible for tonsillitis. Depending on what type of test is used for strep, the doctor may be able to determine within a few minutes if *S. pyogenes* is present. The quick tests for strep are not as reliable as a laboratory culture, which can take 24-48 hours. If the results of a quick test are positive, however, the doctor can prescribe antibiotics right away. If the quick test results are negative, the doctor can do a throat culture

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Streptococcus pyogenes—A common bacterium that causes strep throat and can also cause tonsillitis.

Tonsils—Oval-shaped masses of glandular tissue located on both sides at the back of the throat. Tonsils act like filters to trap bacteria and viruses.

to verify the results and wait for the laboratory report before prescribing antibiotics. A blood test may also be done to rule out a more serious infection or condition, and to check the white blood cell count to see if the body is responding to the infection. In some cases, the doctor may order blood tests for **mononucleosis**, since about a third of patients with mononucleosis develop infections in the tonsils.

Treatment

Treatment of tonsillitis usually involves keeping the patient comfortable while the illness runs its course. This supportive care includes bed rest, drinking extra fluids, gargling with warm salt water, and taking pain relievers to reduce fever. Frozen juice bars and cold fruit drinks can bring some temporary relief of sore throat pain and drinking warm tea or broth can be soothing.

Strengthening the immune system is important whether tonsillitis is caused by bacteria or viruses. Naturopaths often recommend dietary supplements of **vitamin C**, **bioflavonoids**, and beta-carotenes–found naturally in fruits and vegetables–to ease inflammation and fight infection. A variety of herbal remedies also may be helpful in treating tonsillitis. **Calendula** (*Calendula officinalis*) and cleavers (*Galium aparine*) target the lymphatic system, while **echinacea** (*Echinacea spp.*) and **astragalus** (*Astragalus embranaceus*) stimulate the immune system. **Goldenseal** (*Hydrastis canadensis*), **myrrh** (*Commiphora molmol*), and bitter orange (*Citrus aurantium*) act as antibacterials. *Lomatium dissectum* and *Ligusticum porteri* have an antiviral action.

Some of the homeopathic medicines that may be used to treat symptoms of tonsillitis include *Belladonna*, *Phytolacca*, *Mercurius*, *Lycopodium*, *Lachesis*, **Hepar sulphuris**, *Arsenicum*, or *Rhus toxicodenedron*. As with any condition, the treatment and dosage should be appropriate for the particular symptoms and age of the patient. Other demulcent herbs include teas made with **slippery elm** bark, wild cherry, and **licorice**.

Allopathic treatment

If the throat culture shows that *S. pyogenes* is present, penicillin or other antibiotics will be prescribed. An injection of benzathine or procaine penicillin may be most effective in treating the infection, but it is also painful. If an oral antibiotic is prescribed, it must be taken for the full course of treatment, which is usually in 10-14 days.

Expected results

Tonsillitis is usually resolved within a few days with rest and supportive care. Treating the symptoms of sore throat and fever will make the patient more comfortable. If fever persists for more than 48 hours, however, or is higher than 102°F (39°C), the patient should be seen by a doctor. If antibiotics are prescribed to treat an infection, they should be taken as directed for the complete course of treatment, even if the patient starts to feel better in a few days. Prolonged symptoms may indicate that the patient has other upper respiratory infections, most commonly in the ears or sinuses. An **abscess** behind the tonsil (a peritonsillar abscess) may also occur. In rare cases, a persistent sore throat may point to more serious conditions, such as **rheumatic fever** or **pneumonia**.

Prevention

The bacteria and viruses that cause tonsillitis are easily spread from person to person. It is not unusual for an entire family or several students in the same classroom to come down with similar symptoms, especially if *S. pyogenes* is the cause. The risk of transmission can be lowered by avoiding exposure to anyone who already has tonsillitis or a sore throat. Drinking glasses and eating utensils should not be shared and should be washed in hot, soapy water before reuse. Old toothbrushes should be replaced to prevent reinfection. People who are caring for someone with tonsillitis should wash their hands frequently, to prevent spreading the infection to others.

Resources

BOOKS

Berkow, Robert. "Tonsillitis." In *The Merck Manual of Diagnosis and Therapy*. Rahway, NJ: Merck Research Laboratories, 1992.

Eckman, Margaret, and Nancy Priff. "Ear, Nose, and Throat Disorders: Tonsillitis." In *Diseases*. Springhouse, PA: Springhouse Corporation, 1997.

Inlander, Charles B., ed., et al. "Tonsillitis." *The Consumer's Medical Desk Reference*. New York: A Stonesong Press Book, 1995.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Norris, June. "Tonsillitis." In *Professional Guide to Diseases*. Springhouse, PA: Springhouse Corporation, 1995.
Shaw, Michael. "Tonsillitis." In *Everything You Need to Know about Diseases*. Springhouse, PA: Springhouse Corporation, 1996.

Kathleen D. Wright

Toothache

Definition

A toothache is any **pain** or soreness within or around a tooth, indicated by inflammation and infection.

Description

A toothache may feel like a sharp pain or a dull, throbbing ache. The tooth may be sensitive to pressure, heat, cold, or sweets. In cases of severe pain, identifying the problem tooth is often difficult. Any patient with a toothache should see a dentist at once for diagnosis and treatment. Most toothaches get worse if not treated.

Causes and symptoms

Toothaches may result from any of a number of causes:

- tooth decay (dental caries)
- inflammation of the tooth pulp (pulpitis)
- abscesses
- gum disease, including periodontitis
- loose or broken filling
- cracked or impacted tooth
- exposed tooth root
- food wedged between teeth or trapped below the gum line
- tooth nerve irritated by clenching or grinding of teeth (bruxism)
- pressure from congested sinuses
- traumatic injury

Diagnosis

Diagnosis includes identifying the location of the toothache, as well as the cause. The dentist begins by asking the patient specific questions including increased sensitivity or if the pain is worse at night. The patient's mouth is then examined for signs of swelling, redness, and obvious tooth damage. The presence of pus indicates an **abscess** or **gum disease**. The sore area is flushed with warm water to dislodge any food particles and to test for sensitivity to temperature. The dentist may then dry the area with gauze to determine sensitivity to pressure. Finally, the dentist may take x rays, looking for evidence of decay between teeth, a cracked or impacted tooth, or a disorder of the underlying bone.

KEY TERMS

Abscess—A hole in the tooth or gum tissue filled with pus as the result of infection.

Bruxism—Habitual clenching and grinding of the teeth as a result of stress. The behavior usually occurs during sleep.

Cavity—A hole or weak spot in the tooth surface caused by decay.

Dental caries—A disease of the teeth in which microorganisms convert sugar in the mouth to acid, which then erodes the tooth.

Enamel—The hard outermost surface of a tooth.

Endodontist—A dentist who specializes in diagnosing and treating diseases of the pulp and other inner parts of the tooth.

Impacted tooth—A tooth that is growing against another tooth, bone, or soft tissue.

Periodontitis—A gum disease that destroys the structures supporting the teeth, including bone.

Pulp—The soft innermost part of a tooth, containing blood vessels and nerves.

Pulpitis—Inflammation of the pulp of a tooth that involves the blood vessels and nerves.

Treatment

Emergency self-care

Toothaches should always be professionally treated by a dentist. Some methods of self-treatment, however, may help manage the pain until professional care is available:

- Rinsing with warm salt water.
- Using dental floss to remove any food particles.
- Taking aspirin or acetaminophen (Tylenol) to relieve pain. The drug should be swallowed–*never* placed directly on the aching tooth or gum.
- Applying a cold compress against the outside of the cheek. Do not use heat, because it will tend to spread infection.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

- Using clove oil (*Syzygium aromaticum*) to numb the gums. The oil may be rubbed directly on the sore area or used to soak a small piece of cotton and applied to the sore tooth.
- A washcloth soaked in chamomile tea and placed on the infected tooth, or swished around in the mouth will help to ease the pain.

Toothaches caused by infection or tooth decay must be treated by a dentist. Several alternative therapies may be helpful for pain relief until dental treatment is available. The herb **corydalis** (*Corydalis yanhusuo*) may also help relieve toothache pain. Pain also may be reduced using **acupressure**, **acupuncture**, or **reiki**. Acupuncture should only be done by a licensed practitioner.

Allopathic treatment

Treatment will depend on the underlying cause of the toothache. If the pain is due to tooth decay, the dentist will remove the decayed area and restore the tooth with a filling of silver amalgam or composite resin. Loose or broken fillings are removed, decay cleaned out, and a new filling is placed. If the pulp of the tooth is damaged, root canal therapy is needed. The dentist or endodontist removes the decayed pulp, fills the space left behind with a soothing paste, and covers the tooth with a crown to protect and seal it. If the damage cannot be treated by these methods then the tooth must be extracted.

Expected results

Prompt dental treatment provides a positive outcome for a toothache. In the absence of active infection, fillings, root canal treatments, or extractions may be performed with minimal discomfort to the patient. When a toothache is left untreated, a severe infection may develop and spread to the sinuses or jawbone, and eventually cause **blood poisoning**.

Prevention

Maintaining proper oral hygiene is the key to the prevention of toothaches. The best way to prevent tooth decay is to brush at least twice a day, preferably after every meal and snack. Flossing once a day also helps prevent gum disease by removing food particles and bacteria at and below the gum line, as well as between teeth. People should visit their dentist at least every six months for oral examinations and professional cleaning.

Resources

ORGANIZATIONS

Academy of General Dentistry. Suite 1200, 211 East Chicago Avenue, Chicago, IL 60611. (312) 440-4300. http://www.agd.org.

Alliances, Inc. 2121 Eisenhower Avenue, Suite 603, Alexandria, VA 22314. (800) 463-6482. http://www.medsource.com.

American Dental Association. 211 East Chicago Avenue, Chicago, IL 60611. (312) 440-2500. http://www.ada.org.

Kathleen Wright

Tourette syndrome

Definition

Tourette syndrome (TS) is an inherited disease of the nervous system, first described more than a century ago by a pioneering French neurologist, George Gilles de la Tourette. Before they are 18 years of age, patients with TS develop motor tics; that is, repeated, jerky, purposeless muscle movements in almost any part of the body. Patients also develop vocal tics, which occur in the form of loud grunting or barking noises, or in some cases words or phrases. In most patients, the tics come and go, and are often replaced by different sounds or movements. The tics may become more complex as the patient grows older.

Description

TS is three times more common in men than in women. The motor tics, which usually occur in brief episodes several times a day, may make it very hard for the patient to perform such simple acts as tying shoelaces, not to mention work-related tasks or driving. In addition, TS may have negative effects on the patient's social development. Some patients have an irresistible urge to curse or use offensive racial terms (a condition called coprolalia), although these impulses are not under voluntary control. Other people may not enjoy associating with TS patients. Even if they are accepted socially, TS patients live in fear of offending others and embarrassing themselves. In time, they may close themselves off from former friends and even relatives.

It is important to note, however, that the symptoms of Tourette syndrome are not always dramatic and are often overlooked in people with mild cases of the disorder. A 2001 report published in Pain & Central Nervous System Week, in fact, states that TS is much more common than doctors had thought. A study of 1,596 special-education children in

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Basal ganglia (singular, ganglion)—Masses of gray matter in the cerebral hemispheres of the brain that are involved in the regulation of voluntary movements. Tourette syndrome has been linked to these areas of the brain.

Biofeedback—A method of learning to modify a body function, such as blood pressure, muscle tension, or rate of breathing, with the help of an electronic instrument.

Compulsion—A very strong urge to do or say something, usually something irrational or contrary to one's will. Compulsions are often experienced as irresistible.

Coprolalia—The involuntary use of vulgar or obscene language.

Dyslexia—Difficulty in reading, spelling, and writing words.

Neurotransmitters—Any of several chemical substances that transmit nerve impulses across the small gaps between nerve cells.

Tic—An involuntary, sudden, spasmodic muscle contraction.

Rochester, NY, found that 8% met the criteria for TS, and 27% had a tic disorder. In Rochester's general population, 3% were found to have Tourette syndrome, and 20% had a tic disorder. The rate of 3% in the general population is 50–75 times higher than the usual estimates given.

The tics of TS are often described as involuntary, meaning that patients cannot stop them. This description is not strictly true, however. A tic is a very strong urge to make a certain motion or sound. It is more like an itch that demands to be scratched. Some patients are able to control their tics for several hours, but once they are allowed expression, they are even stronger and last longer. Tics become worse when the patient is under **stress**, and usually are much less of a problem during sleep.

Some people with TS have trouble paying attention. They often seem grumpy and may have periods of **depression**. TS patients may think the same thoughts over and over, a mental tic known as an obsession. It is these features that place TS patients on the border between diseases of the nervous system and psychiatric illness. In fact, before research showed that the brains of TS patients undergo abnormal chemical changes, many doctors were convinced that TS was a mental disorder. It still is not clear whether these behaviors are a direct result of TS itself, or a reaction to the stress of having to live with the disease.

Causes and symptoms

Causes

Tourette syndrome has been linked to parts of the brain known as the basal ganglia, which regulate movements and is involved in concentration, paying attention, and decision-making. Research has also demonstrated that in TS, there is a malfunction in the brain's production or use of important substances called neurotransmitters. Neurotransmitters are chemicals that control the signals that are sent along the nerve cells. The neurotransmitters dopamine and serotonin have been implicated in TS; noradrenaline is thought to be the most important stimulant. Medications that mimic noradrenaline may cause tics in susceptible patients.

TS has a genetic component. If one parent has TS, each child has a 50% chance of getting the abnormal gene. Seven of every 10 girls who inherit the gene, and nearly all boys who inherit it, will develop symptoms of TS. Overall, about one in every 2,500 persons has full-blown TS. Three times as many will have some features, usually chronic motor tics or obsessive thoughts. Patients with TS are more likely to have trouble controlling their impulses, to have **dyslexia** or other learning problems, and to talk in their sleep or wake frequently. Compulsive behavior, such as constantly washing the hands or repeatedly checking that a door is locked, is a common feature of TS. Compulsions are seen in 30–90% of all TS patients.

Recent research findings suggest that Tourette syndrome may also be related to an autoimmune response. A subset of TS patients have symptoms triggered by infection with Group A beta-hemolytic streptococci. In addition, blood serum antibodies against human basal ganglia have been found in patients with TS.

Symptoms

Motor tics in TS can be classified as simple or complex. Simple tics are sudden, brief movements involving a single group of muscles or a few groups, which may be repeated several times. Complex tics consist of a repeated pattern of movements that can involve several muscle groups and usually occur in the same order. For instance, a boy with TS may repeatedly move his head from side to side, blink his eyes, open his mouth, and stretch his neck. Vocal tics may be sounds or noises that lack all meaning, or repeated words and phrases that can be understood. Tics tend to get worse and better in cycles, and patients can

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

develop new tics as they grow older. The symptoms of TS may get much better for weeks or months at a time, only to worsen later.

The following examples show why TS can be such a strange and dramatic disorder:

- Simple motor tics. These may include blinking the eyes, pouting the lips, shaking or jerking the head, shrugging the shoulders, and grimacing or making faces. Any part of the body may be tensed up or rapidly jerked, or a patient may suddenly kick. Rapid finger movements are common, as are snapping the jaws and clicking the teeth.
- Complex motor tics. These may include jumping, touching parts of the body or certain objects, smelling things over and over, stamping the feet, and twirling about. Some TS patients throw objects, others arrange things in a certain way. Biting, head-banging, writhing movements, rolling the eyes up or from side to side, and sticking out the tongue may all be seen. A child may write the same letter or word over and over, or may tear apart papers and books. Though they do not intend to be offensive, TS patients may make obscene gestures like "giving the finger," or they may imitate any movements or gestures made by others.
- Simple vocal tics. These include clearing the throat, coughing, snorting, barking, grunting, yelping, and clicking the tongue. Patients may screech or make whistling, hissing, or sucking sounds. They may repeat sounds such as "uh, uh," or "eee."
- Complex vocal tics and patterns. Older children with TS may repeat a phrase such as "Oh boy," "All right," or "What's that?" Or they may repeat everything they, or others, say a certain number of times. Some patients speak very rapidly or loudly, or in a strange tone or accent. Coprolalia (saying "dirty words" or suggestive or hostile phrases) is probably the best known feature of TS, but fewer than one-third of all patients display this symptom.

Behavioral abnormalities that may be associated with TS include attention deficit hyperactivity disorder (ADHD) and disruptive behaviors, including conduct disorder and oppositional defiant disorder, with aggressive, destructive, antisocial, or negativistic behavior. Academic disorders, **learning disorders**, and sleep abnormalities (such as sleepwalking and nightmares) are also seen in TS patients.

Diagnosis

There are no specific tests for TS. TS is diagnosed by observing the symptoms and asking whether relatives have had a similar condition. To qualify as TS, both motor and vocal tics should be present for at least a year and should begin before age 18 (or, some believe, age 21). Often, the diagnosis is delayed because the patient is misunderstood not only at home and at school, but in the doctor's office as well. It may take some time for the patient to trust the doctor enough not to suppress the strangest or most alarming tics. Blood tests may be done in some cases to rule out other movement disorders. A test of the brain's electrical activity (electroencephalograph or EEG) is often abnormal in TS, but not specific. A thorough medication history is very important in making the diagnosis as well, because stimulant drugs may provoke tics or aggravate the symptoms of TS.

Treatment

Although there is no cure for TS, many alternative treatments may lessen the severity and frequency of the tics. These include:

- Acupuncture. In one study, acupuncture treatment of 156 children with TS had a 92.3% effective rate.
- Behavioral treatments. Some of these can help TS patients control tics. A large variety of these methods exist, some with proven success.
- Cognitive behavioral therapy. This form of therapy helps the patient to change his or her ingrained response to a particular stimulus. It is somewhat effective in treating the obsessive-compulsive behaviors associated with TS.
- Neurofeedback (electroencephalographic biofeedback). In neurofeedback, the patient learns to control brain wave patterns; it may be effective in reducing the symptoms of TS. There are, however, no data on this modality as a treatment for TS.
- Psychotherapy. This form of treatment can help the TS patient, and his or her family, cope with depression, poor relationships, and other issues commonly associated with TS.
- Relaxation techniques. Yoga and progressive muscular relaxation are believed to help TS, especially when used in combination with other treatments, because they lower the patient's stress level. One small study found that relaxation therapy (awareness training, deep breathing, behavioral relaxation training, applied relaxation techniques, and biofeedback) reduced the severity of tics, although the difference between the treatment group and control group was not statistically significant.
- Stress reduction training. This training may help relieve the symptoms of TS because stress worsens the tics.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

- Other alternative therapies. Homeopathy, hypnosis, guided imagery, and eliminating allergy-provoking foods from the diet have all been reported as helping some TS patients.

Allopathic treatment

Most TS patients do not need to take drugs, as their tics do not seriously interfere with their lives. Drugs that are used to reduce the symptoms of TS include haloperidol (Haldol), pimozide (Orap), clonidine (Catapres), guanfacine (Tenex), and risperidone (Risperdal). One interesting recent finding is that the transdermal nicotine patch, developed to help people quit **smoking**, improves the control of TS symptoms in children who take haloperidol. Use of the patch allows the haloperidol dosage to be cut in half without loss of effectiveness in symptom control.

Stereotactic treatment, which is high-frequency stimulation of specific regions of the brain, was reported to be successful in significantly reducing tics in a TS patient who had failed to respond to other treatments.

Expected results

Although there is no cure for TS, many patients improve as they grow older, often to the point where they can manage their lives without drugs. A few patients recover completely after their teenage years. Others learn to live with their condition. There is always a risk, however, that a patient who continues having severe tics will become more antisocial or depressed, or develop severe mood swings and panic attacks.

Prevention

The only way to prevent TS is for a couple not to have children when one of them has the condition. Any child of a TS parent has a 50% chance of inheriting the syndrome.

Resources

BOOKS

Landau, Elaine. *Tourette Syndrome*. Danbury, CT: Franklin Watts, 1998.

Leckman, James F., and Donald J. Cohen. *Tourette's Syndrome—Tics, Obsessions, Compulsions: Developmental Psychopathology and Clinical Care*. New York: John Wiley &Sons, Inc., 1998.

The Merck Manual of Diagnosis and Therapy. Edited by Mark H. Beers, MD, and Robert Berkow, MD. Whitehouse Station, NJ: Merck Research Laboratories, 1999.

PERIODICALS

"Nicotine Patch Could Help Against Condition's Tics." *Health & Medicine Week* (October 8, 2001).

"Rate of Disease Much Higher Than Had Been Thought." *Pain and Central Nervous System Week* (November 19, 2001): 9.

Trifiletti, Rosario. "Antistriatal Antibodies in Tourette Syndrome: Not a Simple Story." *Neurology Alert* 20 (October 2001): 14.

ORGANIZATIONS

National Institute of Neurological Disorders and Stroke. National Institutes of Health. P.O. Box 5801, Bethesda, MD 20824. (800) 352-9424. http://www.ninds.nih.gov.

Tourette Syndrome Association, Inc. 42-40 Bell Boulevard, Bayside, NY 11361-2820. (718) 224-2999. Fax: (718) 279-9596. ts@tsa-usa.org. http://www.tsa-usa.org.

OTHER

"Tourette Disorder." *Internet Mental Health*. [cited October 2002]. http://www.mentalhealth.com/fr00.html.

Belinda Rowland
Rebecca J. Frey, PhD

Toxemia *see* **Blood poisoning**

Toxic building syndrome *see* **Sick building syndrome**

Toxic shock syndrome

Definition

Toxic shock syndrome (TSS) is an uncommon, but potentially serious, illness that occurs when poisonous substances (toxins) produced by certain bacteria enter the bloodstream. The toxins cause a type of **blood poisoning** caused by staphylococcal, or less commonly streptococcal, **infections** in the lungs, throat, skin or bone, or from injuries. Women using super-absorbent tampons during **menstruation** were found to be most likely to get toxic shock syndrome.

Description

TSS first came to the attention of the public in the 1970s. Shortly after the introduction of a super-absorbent tampon, young women across the United States experienced an epidemic of serious but unexplained symptoms. Thousands went to emergency rooms with high **fever**, **vomiting**, peeling skin, low blood pressure, **diarrhea**, and a rash resembling **sunburn**. The only thing they had in common was that they all were menstruating

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Shock—A condition in which the amount of blood circulating in the body is inadequate to meet the body's needs. Shock can be caused by certain diseases, serious injury, or blood loss.

Staphylococcus—A genus of bacteria that is commonly found on human skin and mucous membranes.

Streptococcus—A genus of sphere-shaped bacteria that can cause a wide variety of infections.

at the time they felt sick, and all were using tampons—especially super absorbent products.

At its height, the epidemic affected 15,000 people in the United States each year between 1980 and 1984; 15% of the women died. Since the offending products were taken off the market, the numbers of TSS cases have declined sharply. As of 1998, only about 5,000 cases are diagnosed annually in the United States, 5% of which are fatal. The decline is most likely due to the tampon manufacturers' discontinuing the use of some synthetic materials, and the removal from the market of the brand of tampon associated with most cases of TSS. Today, most of these products are made with rayon and cotton.

In spite of TSS's association with menstruating women, the disease can affect anyone of either sex or any age or race. The infection may occur in children, men, and non-menstruating women who are weakened from surgery, injury, or disease, and who cannot fight off a staphylococcal infection. New mothers are also at higher risk for TSS, particularly if they had a caesarean section or if they are breastfeeding their infants.

Most cases reported in Western countries still involve menstruating women under age 30. TSS still occurs in about 17 out of every 100,000 menstruating girls and women each year; more than half of these cases are related to tampons. Between 5% and 10% of patients with TSS die.

In the developing countries, however, toxic shock syndrome often affects children. A recent report of staphylococcal TSS from Saudi Arabia concerned a four-month-old infant. **Burns** appear to increase the risk of TSS in children in all countries.

Streptococcal toxic shock syndrome (STSS)

A new type of toxic shock syndrome is caused by a different bacterium, called Group A streptococcus. This form of TSS is called streptococcal toxic shock syndrome, or STSS. Officially recognized in 1987, STSS is related to the strain of streptococcus called the flesh-eating bacterium. STSS affects only one or two out of every 100,000 Americans. It almost never follows a simple **strep throat** infection.

In Europe and the United Kingdom, however, the incidence of streptococcal toxic shock syndrome has continued to rise through the 1990s. In one district in the United Kingdom, the annual rate rose from 1.1 cases per million population in 1990 to 9.5 cases per million by 1999. The fatality rate is 64%, even in healthy young adults.

Causes and symptoms

Transmission

STSS is caused by a strain of *Streptococcus pyogenes* found in the nose, mouth, and occasionally the vagina. The bacteria produce a characteristic toxin. In large enough quantities, the toxin can enter the bloodstream, causing a potentially fatal infection.

While experts know the name of the bacterium, more than 10 years after the 1980s epidemic scientists still do not fully understand the link between TSS and tampons. Most medical researchers today suspect that the absorbent tampons introduce oxygen into the vagina, which is normally an oxygen-free area of the body. Oxygen triggers bacterial growth, and the more absorbent the tampon, the more bacteria it can harbor. Some experts believe that the reason TSS is linked to tampons in particular is that bacteria can contaminate and multiply in a tampon. If left in place for a long time—as a woman could do with a super absorbent product—the bacteria have a better chance of multiplying and producing a large amount of toxin. It is also possible that the tampons or the chemicals they contain may irritate the vaginal lining, enabling the toxin to enter the bloodstream.

These type of bacteria are normally present either on hands or in the vagina, and it takes an amount of bacteria only the size of a grain of sand to start an infection. Of the 15% of women who carry *Staphylococcus aureus*, only about 5% have the strain that produces the TSS toxin.

Symptoms

TSS. TSS begins suddenly, with a high fever of 102°F (38.9°C) or above, vomiting and watery diarrhea, **headache**, and sunburn-like rash; together with a **sore throat** and body aches. Blood pressure may plummet a day or two after the first symptoms appear.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

When the blood pressure drops, a woman may become disoriented or go into shock and her kidneys may fail. After these developments, the skin on her hands and feet may peel.

STSS. STSS can occur after a streptococcal infection in the body, usually from an infected wound or even **chickenpox**. Typically, within 48-96 hours, the patient's blood pressure drops. There is also fever, **dizziness**, breathing problems, and a weak, rapid pulse. The area around the wound may swell, the liver and kidneys can fail, and bleeding problems may occur.

Diagnosis

Any woman who is wearing a tampon and begins to experience the symptoms of toxic shock syndrome should remove the tampon right away and seek medical care.

The doctor will probably examine the vagina for signs of inflammation and rule out common sexually transmitted diseases with similar symptoms. A variety of blood tests, tests of vaginal secretions, and a physical examination are needed to identify this condition.

Treatment

Toxic shock syndrome is a life-threatening condition. If it is suspected, emergency medical attention should be sought immediately. Treatment with antibiotic drugs and IV fluids will be necessary.

Goldenseal, **calendula**, and **echinacea** can be applied topically. A diet low in sugar, with an increase in the consumption of vegetables and fruit helps to build the immune system. Movement therapies and **exercise** is also beneficial.

Allopathic treatment

TSS

In a menstruating woman, the vagina is first cleansed with an antiseptic solution to eliminate some of the bacteria that produce the toxin. TSS is treated with antibiotics, together with other drugs and fluids to lower fever and control blood pressure.

STSS

Antibiotics are used to treat STSS. Surgery may be needed to remove dead skin and muscle.

Expected results

TSS lasts as long as three weeks, and may have a tendency to recur. About a third of the women who are treated for TSS have it again within six months. In addition, TSS can affect the liver, kidneys, lungs, and other organs, depending on the severity of the infection. Untreated toxic shock syndrome can be fatal.

Prevention

TSS

Women who wear tampons should change them often and use different brands and types of pads and tampons. If a woman really prefers tampons, experts recommend using the lowest possible absorbency product made of cotton and rayon, and wearing it only during the day. In the past, it was difficult to compare absorbency rates for different products. Today, the Food and Drug Administration (FDA) requires standardized absorbency measurements on all tampon boxes. Above all, women should wash their hands before inserting a tampon, and change the tampon every four to six hours.

Anyone who has had TSS even once should not use tampons again.

STSS

Doctors still are not sure how people can avoid STSS, but they advise patients to clean and bandage open **wounds** immediately. Anyone with a red, swollen, or tender wound, or a sudden fever should seek medical care.

Resources

BOOKS

Turkington, Carol A. *Infectious Disease A to Z*. New York: Facts on File, 1998.

PERIODICALS

Amir, L. "Breastfeeding and *Staphylococcus aureus*: Three Case Reports." *Breastfeeding Review* 10 (March 2002): 15-18.

Barnham, M. R., N. C. Weightman, A. W. Anderson, and A. Tanna. "Streptococcal Toxic Shock Syndrome: A Description of 14 Cases from North Yorkshire, UK." *Clinical Microbiology and Infection* 8 (March 2002): 174-178.

Ghazal, S. S., M. N. Al-Hawasi, S. A. Al-Mosallam, et al. "Staphylococcal Toxic Shock Syndrome in a Small Infant." *Saudi Medical Journal* 23 (February 2002): 229-231.

Johnson, D., and P. D. Panthirana. "Toxic Shock Syndrome Following Cessation of Prophylactic Antibiotics in a Child with a 2% Scald." *Burns* 28 (March 2002): 181-184.

"Toxic shock syndrome—United States." *Morbidity and Mortality Weekly Report* 46 (22) (June 6, 1997): 492-495.

Paula Ford-Martin
Rebecca J. Frey, PhD

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

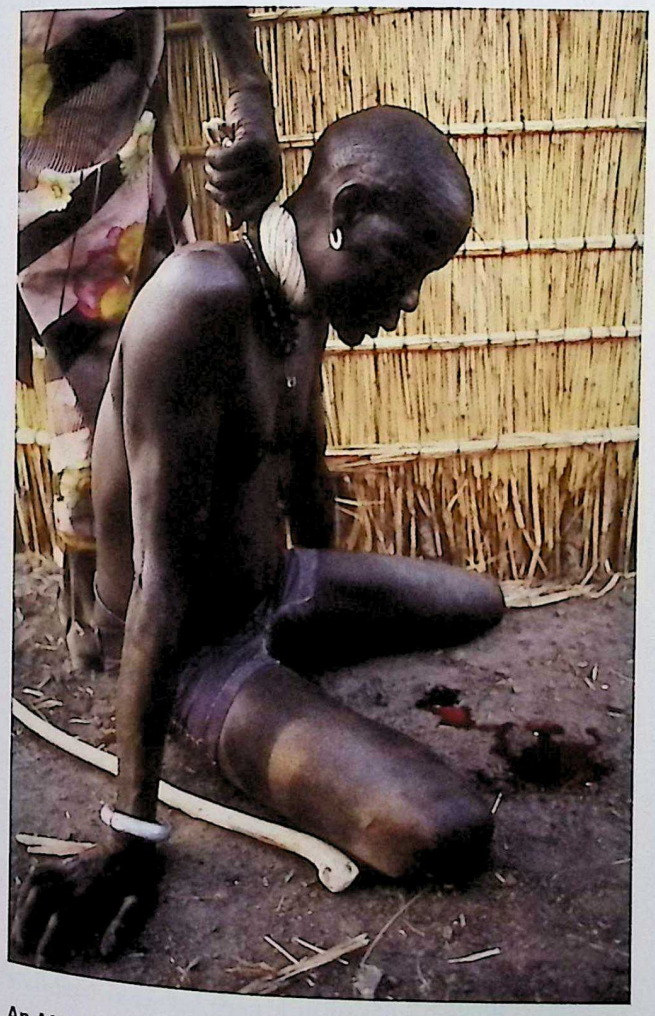
Traditional African medicine

Definition

Traditional African medicine is a holistic discipline involving extensive use of indigenous herbalism combined with aspects of African **spirituality**.

Origins

Despite numerous attempts at government interference, this ancient system of healing continues to thrive in Africa and practitioners can be found in many other parts of the world. Under colonial rule, many nations considered traditional diviner-healers to be practitioners of witchcraft and outlawed them for that reason. In some areas of colonial Africa, attempts were also made to control the sale of traditional herbal medicines. After Mozambique obtained independence in 1975, diviner-healers were sent to re-education camps. Opposition to traditional medicine has been particularly vehement during times of conflict, when people have been more likely to call on the supernatural realm. More recently, interest has been expressed in integrating traditional African medicine with the continent's national health care systems. In Kwa-Mhlanga, South Africa, a 48-bed hospital combines traditional African medicine with **homeopathy**, **iridology**, and other Western healing methods, as well as traditional Asian medicine. Founded by a traditional African healer, the hospital is said to be the first of its kind in the country.



An African man has cut his forehead to relieve a headache. *(© Photo Researchers, Inc. Reproduced by permission.)*

Benefits

Practitioners of traditional African medicine claim to be able to cure a wide range of conditions, including cancers, acquired immunodeficiency syndrome (**AIDS**), psychiatric disorders, high blood pressure, cholera, **infertility**, and most venereal diseases. Other applications include **epilepsy**, **asthma**, **eczema**, hayfever, **anxiety**, **depression**, benign prostatic hypertrophy, urinary tract **infections**, **gout**, and healing of **wounds** and **burns**.

Description

Traditional African medicine involves diviners, midwives, and herbalists. Diviners are responsible for determining the cause of illness, which in some causes are believed to stem from ancestral spirits and other influences. Traditional midwives make extensive use of indigenous plants to aid **childbirth**. Herbalists are so popular in Africa that an herb trading market in Durban is said to attract between 700,000 and 900,000 traders a year from South Africa, Zimbabwe, and Mozambique. Smaller herb markets exist in virtually every community.

There are strong spiritual aspects to traditional African medicine, with a widespread belief among practitioners that psycho-spiritual aspects must be addressed before medical aspects. Among traditional healers, the ability to diagnose an illness is considered a gift from both God and the practitioner's ancestors. A major emphasis is placed on determining the root cause underlying any sickness or bad luck. Illness is said to stem from a lack of balance between the patient and his or her social environment. It is this imbalance that determines the choice of the healing plant, which is valued as much for its symbolic and spiritual significance as for its medicinal effect. For example, the colors white, black, and red are considered especially symbolic or magical. Seeds, leaves, and twigs bearing these colors are deemed to possess special properties.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Diviners may use plants not only for healing purposes but also to control weather and events. In addition to plants, traditional African healers may employ charms, incantations, and casting of spells.

One traditional African medicinal cure that has developed a wide following outside the continent is pygeum (*Prunus africana*), which has been sold in Europe since the 1970s as a treatment for mild-to-moderate benign prostatic hyperplasia. Each year, 2,000 metric tons of pygeum bark are harvested in Cameroon and another 600 tons are harvested in Madagascar. In Africa, the bark is made into a tea. Elsewhere in the world, it is sold in powders, tinctures, and pills, often combined with other herbs believed to help with prostate problems. Users report greater ease of urination, with reduced inflammation and **cholesterol** deposits.

A comparison between numbers of traditional healers and medical doctors demonstrates the importance of this healing modality in Africa. In the Venda area of South Africa, there is one traditional practitioner for every 700–1,200 people, compared to one physician for every 17,400 people. Swaziland has one traditional healer for every 110 people. Benin City, Nigeria has the same ratio. Urban Kenya has one traditional healer per 833 population.

Precautions

All cases of serious illness need to be examined by a medical doctor. Even though many prostate conditions are not serious, patients thinking of using pygeum should first undergo a medical examination to rule out more serious problems.

Concern has been expressed that increased demand for wild plants used in traditional African medicine is endangering local plant populations. For example, the Washington-based group Future Harvest says that a $220 million annual market for *Prunus africana* as a prostrate remedy could lead to extinction of the slow-maturing evergreen tree in the African wilds.

Some Christian church officials express opposition to elements of witchcraft used by some African healers.

Side effects

Serious side effects, even death, can result from incorrect identification of healing plants. For example, species of the **aloe** plant are extensively used in traditional African medicine, but some forms, such as *Aloe globuligemma*, are toxic and can result in death if misidentified.

Convulsions and fatalities have been linked to the use of African herb concoctions known as *imbiza*, used for male erectile problems. Suppliers insist the problems occur only when too much of the concoction is consumed.

Research and general acceptance

Although many of the principles and methods of traditional African medicine are quite foreign to orthodox medical thinking, there is nonetheless considerable interest in exploiting Africa's ethnobotanical knowledge for drug-development purposes. For example, U.S. researchers have expressed interest in using seed extracts from *Garcinia kola*, a common African tree used by traditional healers, to treat Ebola and Marburg disease.

Training and certification

The field is largely unregulated. In Africa, many traditional practitioners are simple, uneducated people who have nonetheless accumulated a great deal of knowledge about native plants and their actions on the human body. There is considerable interest in integrating traditional African medicine more fully with the continent's national medical systems. In Harare, Zimbabwe, a school of Traditional African Medicine opened its doors in October, 1999. Students include both traditional healers and university graduates.

Resources

PERIODICALS

Kale, R. "Traditional healers in South Africa: a parallel health care system." *British Medical Journal* 310 (6988) (May 6 1995):1182-5.

David Helwig

Traditional Chinese medicine

Definition

Traditional Chinese medicine (TCM) is based on a set of interventions designed to restore balance to human beings. The therapies usually considered under the heading of classic Chinese medicine include:

- acupunture and moxibustion
- dietary regulation
- herbal remedies
- massage
- therapeutic exercise

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

These forms of treatments are based upon beliefs that differ from the disease concept favored by Western medicine. What is referred to as illness by Western medicine is considered in traditional Chinese medicine to be a matter of disharmony or imbalance.

The philosophy behind Chinese medicine is a melding of tenets from Buddhism, Confucianism, and the combined religious and philosophical ideas of Taoism. Although there are various schools of thought among practitioners of traditional Chinese medicine, five Taoist axioms form its basis:

- There are natural laws which govern the universe, including human beings.
- The natural order of the universe is innately harmonious and well-organized. When people live according to the laws of the universe, they live in harmony with that universe and the natural environment.
- The universe is dynamic, with change as its only constant. Stagnation is in opposition to the law of the universe and causes what Western medicine calls illness.
- All living things are connected and interdependent.
- Humans are intimately connected to and affected by all facets of their environment.

KEY TERMS

Five Elements—The five basic substances (water, wood, earth, fire, and metal) that symbolize the fundamental qualities of the universe. In Chinese food cures, the five elements are correlated with the internal organs of the body and with the five basic food tastes.

Five Substances—The basic entities in the human body that serve its development and maintenance. They include qi, Vital Essence, Spirit, Blood, and Fluids.

Meridians—Pathways of subtle energy that link and regulate the various structures, organs, and substances in the human body.

Moxibustion—A technique of treatment in which the practitioner warms the skin over vital qi points by holding a burning herbal wick above the skin.

Qi—The universal life-force or energy. The quality, quantity, and balance of a person's qi determines their state of health and longevity.

Qigong—A form of therapeutic exercise that emphasizes breathing techniques to direct the qi to different parts of the body.

Taoism—The system of thought that shaped the view of creation underlying traditional Chinese medicine.

Tui na—A form of Chinese massage in which the therapist vigorously pushes and kneads the soft tissues of the patient's body. Its name means "push and grasp."

Yin and yang—In Taoist thought, the two primordial opposing yet interdependent cosmic forces.

Origins

Historical background

Traditional Chinese medicine is more than 2,000 years old. It originated in the region of eastern Asia that today includes China, Tibet, Vietnam, Korea, and Japan. The first written Chinese medical treatises (as the West understands the term) date from the Han dynasty (206 B.C.– A.D. 220). Tribal shamans and holy men who lived as hermits in the mountains of China as early as 3500 B.C. practiced what was called the "Way of Long Life." This regimen included a diet based on herbs and other plants; kung-fu exercises; and special breathing techniques that were thought to improve vitality and life expectancy.

After the Han dynasty, the next great age of Chinese medicine was under the Tang emperors, who ruled from A.D. 608-A. D. 906. The first Tang emperor established China's first medical school in A.D. 629. Under the Song (A.D. 960–1279) and Ming (A.D. 1368–1644) dynasties, new medical schools were established, their curricula and qualifying examinations were standardized, and the traditional herbal prescriptions were written down and collected into encyclopedias. One important difference between the development of medicine in China and in the West is the greater interest in the West in surgical procedures and techniques. In the nineteenth and early twentieth centuries, the opening of China to the West led to the establishment of Western-style medical schools in Shanghai and other large cities, and a growing rivalry between the two traditions of medicine. In 1929 a group of Chinese physicians who had studied Western medicine petitioned the government to ban traditional Chinese medicine. This move was opposed, and by 1933 the Nationalist government appointed a chief justice of the Chinese Supreme Court to systematize and promote the traditional system of medicine. In contemporary China, both traditional and Western forms of medicine are practiced alongside each other.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Philosophical background: the cosmic and natural order

In Taoist thought, the Tao, or universal first principle, generated a duality of opposing principles that underlie all the patterns of nature. These principles, yin and yang, are mutually dependent as well as polar opposites. They are basic concepts in traditional Chinese medicine. Yin represents everything that is cold, moist, dim, passive, slow, heavy, and moving downward or inward; while yang represents heat, dryness, brightness, activity, rapidity, lightness, and upward or outward motion. Both forces are equally necessary in nature and in human wellbeing, and neither force can exist without the other. The dynamic interaction of these two principles is reflected in the cycles of the seasons, the human life cycle, and other natural phenomena. One objective of traditional Chinese medicine is to keep yin and yang in harmonious balance within a person.

In addition to yin and yang, Taoist teachers also believed that the Tao produced a third force, primordial energy or qi (also spelled chi or ki). The interplay between yin, yang, and qi gave rise to the Five Elements of water, metal, earth, wood, and fire. These entities are all reflected in the structure and functioning of the human body.

The human being

Traditional Chinese physicians did not learn about the structures of the human body from dissection because they thought that cutting open a body insulted the person's ancestors. Instead they built up an understanding of the location and functions of the major organs over centuries of observation, and then correlated them with the principles of yin, yang, qi, and the Five Elements. Thus wood is related to the liver (yin) and the gall bladder (yang); fire to the heart (yin) and the small intestine (yang); earth to the spleen (yin) and the stomach (yang); metal to the lungs (yin) and the large intestine (yang); and water to the kidneys (yin) and the bladder (yang). The Chinese also believed that the body contains Five Essential Substances, which include blood, spirit, vital essence (a principle of growth and development produced by the body from qi and blood); fluids (all body fluids other than blood, such as saliva, spinal fluid, sweat, etc.); and qi.

A unique feature of traditional Chinese medicine is the meridian system. Chinese doctors viewed the body as regulated by a network of energy pathways called meridians that link and balance the various organs. The meridians have four functions: to connect the internal organs with the exterior of the body, and connect the person to the environment and the universe; to harmonize the yin and yang principles within the body's organs and Five Substances; to distribute qi within the body; and to protect the body against external imbalances related to weather (wind, summer heat, dampness, dryness, cold, and fire).

Benefits

Traditional Chinese medicine offers the following benefits:

- It is believed by some to treat certain chronic illnesses more effectively than Western medicine.
- It is holistic; all aspects of the person's being are taken into account.
- It treats the root cause of the disease as well as the manifest symptoms. Chinese practitioners distinguish between the root (*ben*) of an illness and its branches (*biao*). The root is the basic pattern of imbalance in the patient's qi; the branches are the evident symptoms.
- Traditional Chinese medicine does not rely on pharmaceutical products that often cause side effects.
- It improves a person's general health as well as treating specific diseases or disorders.
- It is often less expensive than standard allopathic treatment.
- It is not a self-enclosed system but can be used in combination with Western medicine.
- It can be used to treat the side effects of Western modalities of treatment.

Description

Acupuncture/moxibustion

Acupuncture is probably the form of treatment most familiar to Westerners. It is often used for **pain** relief, but has wider applications in traditional Chinese practice. It is based on a view of the meridians that regards them as conduits or pathways for the qi, or life energy. Disease is attributed to a blockage of the meridians; thus acupuncture can be used to treat disorders of the internal organs as well as muscular and skin problems. The insertion of needles at specific points along the meridians is thought to unblock the qi. More than 800 acupuncture points have been identified, but only about 50 are commonly used. Acupuncture is usually used as a treatment together with herbal medicines.

Moxibustion refers to the practice of burning a moxa wick over the patient's skin at vital points. Moxa is a word derived from Japanese and means "burning

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

herbs." The moxa wick is most commonly made from *Artemisia vulgaris*, or Chinese **wormwood**, but other herbs can also be used. Moxibustion is thought to send heat and nourishing qi into the body. It is used to treat a number of different illnesses, including **nosebleeds**, pulled muscles, **mumps**, arthritis, and vaginal bleeding.

Dietary regulation

Diet is regarded as the first line of treatment in Chinese medicine; acupuncture and herbal treatments are used only after changes in diet fail to cure the problem. Chinese medicine uses foods to keep the body in internal harmony and in a state of balance with the external environment. In giving dietary advice, the Chinese physician takes into account the weather, the season, the geography of the area, and the patient's specific imbalances (including emotional upsets) in order to select foods that will counteract excesses or supply deficient elements. Basic preventive dietary care, for example, would recommend eating yin foods in the summer, which is a yang season. In the winter, by contrast, yang foods should be eaten to counteract the yin temperatures. In the case of illness, yin symptom patterns (**fatigue**, pale complexion, weak voice) would be treated with yang foods, while yang symptoms (flushed face, loud voice, restlessness) would be treated by yin foods.

Chinese medicine also uses food as therapy in combination with **exercise** and herbal preparations. One aspect of a balanced diet is maintaining a proper balance of rest and activity as well as selecting the right foods for the time of year and other circumstances. If a person does not get enough exercise, the body cannot transform food into qi and Vital Essence. If they are hyperactive, the body consumes too much of its own substance. With respect to herbal preparations, the Chinese used tonics taken as part of a meal before they began to use them as medicines. Herbs are used in Chinese cooking to give the food specific medicinal qualities as well as to flavor it. For example, **ginger** might be added to a fish dish to counteract **fever**. Food and medical treatment are closely interrelated in traditional Chinese medicine. A classical Chinese meal seeks to balance not only flavors, aromas, textures, and colors in the different courses that are served, but also the energies provided for the body by the various ingredients.

Herbal remedies

Chinese herbal treatment differs from **Western herbalism** in several respects. In Chinese practice, several different herbs may be used, according to each plant's effect on the individual's qi and the Five Elements. There are many formulas used within traditional Chinese medicine to treat certain common imbalance patterns. These formulas can be modified to fit specific individuals more closely.

In 2002, a study in Texas showed that a traditional Chinese antirheumatic herb extract helped patients with **rheumatoid arthritis** by improving symptoms such as morning stiffness and tender, swollen joints. Side effects of decreased appetite and **nausea** were tolerable for those the herb helped. The researchers planned to move on to a more scientifically controlled clinical trial phase to further test the herb's effectiveness. Another scientific study that year reported new benefits for applying soy proteins, an ancient Chinese practice, to the skin. Scientists worked on a new preparation that showed benefits in reducing age spots and ultraviolet ray damage, and smoothing and moisturizing the skin, among other benefits.

A traditional Chinese herbal formula typically contains four classes of ingredients, arranged in a hierarchical order: a chief (the principal ingredient, chosen for the patient's specific illness); a deputy (to reinforce the chief's action or treat a coexisting condition); an assistant (to counteract side effects of the first two ingredients); and an envoy (to harmonize all the other ingredients and convey them to the parts of the body that they are to treat).

Massage

Massage is recommended in traditional Chinese medicine to unblock the patient's meridians, stimulate the circulation of blood and qi, loosen stiff joints and muscles, and strengthen the immune system. It may be done to relieve symptoms without the need for complex diagnosis. **Chinese massage** is commonly used to treat back strain, pulled muscles, **tendinitis**, **sciatica**, rheumatism, arthritis, **sprains**, and similar ailments. In *Tui na* massage, the practitioner presses and kneads various qi points on the patient's body. The patient does not need to undress but wears thin cotton clothes. He or she sits on a chair or lies on a massage couch while the practitioner presses on or manipulates the soft tissues of the body. *Tui na* means "push and grasp" in Chinese. It is not meant to be relaxing or pampering but is serious treatment for sports injuries and chronic pain in the joints and muscles. *Tui na* is used to treat the members of Chinese Olympic teams.

Therapeutic exercise

Therapeutic exercise, or *qigong*, is an ancient Chinese form of physical training that combines

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

preventive healthcare and therapy. *Qigong* relies on breathing techniques to direct the qi to different parts of the body. The literal translation of *qigong* is "the cultivation and deliberate control of a higher form of vital energy." Another form of therapeutic exercise is **t'ai chi**, in which the person moves through a series of 30–64 movements that require a relaxed body and correct rhythmic breathing. Many Chinese practice t'ai chi as a form of preventive medicine.

Preparations

Preparations for treatment in traditional Chinese medicine are similar to preparing for a first-time visit to a Western physician. The patient will be asked to give a complete and detailed medical history. The practitioner may touch the patient's acupuncture meridians to evaluate them for soreness or tightness. The major difference that the patient will notice is the much greater attention given in Chinese medicine to the tongue and the pulse. The Chinese practitioner will evaluate the patient's tongue for form, color, and the color and texture of the tongue fur. In taking the pulse, the Chinese therapist feels three pressure points along each wrist, first with light pressure and then with heavy pressure, for a total of 12 different pulses on both wrists. Each pulse is thought to indicate the condition of one of the 12 vital organs.

Precautions

There are no special precautions necessary for treatment with traditional Chinese medical techniques other than giving the practitioner necessary details about major or chronic health problems.

Side effects

Side effects with traditional Chinese medicine are usually minor. With herbal treatments, there should be no side effects if the patient has been given the correct formula and is taking it in the prescribed manner. Some people feel a little sore or stiff the day after receiving *Tui na* massage, but the soreness does not last and usually clears up with repeated treatments. Side effects from acupuncture or from therapeutic exercise under the guidance of a competent teacher are unusual. However, care should be taken in using herbal preparations and possible side effects or toxins within any preparations, as well as interactions with other drugs. Patients should consult with qualified practitioners.

Research and general acceptance

At present, there is renewed interest in the West in traditional Chinese medicine. Of the 700 herbal remedies used by traditional Chinese practitioners, over 100 have been tested and found effective by the standards of Western science. Several United States agencies, including the National Institutes of Health, the Office of Alternative Medicine, and the Food and Drug Administration are currently investigating Chinese herbal medicine as well as acupuncture and *Tui na* massage. In general, however, Western studies of Chinese medicine focus on the effects of traditional treatments and the reasons for those effects, thus attempting to fit traditional Chinese medicine within the Western framework of precise physical measurements and scientific hypotheses.

As use of traditional Chinese medicine has increased steadily in the West, many allopathic physicians have needed to understand the intricacies of the practice and to know how to deal with adverse reactions to herbal remedies. In 2002, a project was undertaken to develop a Chinese herbal medicine toxicology database to share information about English and Chine studies on Chinese herbal medicines. The goal of the project was to help doctors in Western hospitals better manage poisonings or adverse reactions to Chinese medicines.

Training and certification

Traditional Chinese medicine practitioners can be either acupuncturists, herbalists, or both. At present, no schools accredited in the United States confer the degree of Doctor of Oriental Medicine because the standards for such a degree have not yet been established. More than half of the 50 states now have licensing boards for acupuncturists. There is no present independent licensing for herbalists. California has been the only state that has required (since 1982) acupuncture practitioners to take licensing examinations in both acupuncture and herbal medicine.

There is also a national organization called the National Commission for the Certification of Acupuncture and Oriental Medicine (NCCAOM) that offers certification in acupuncture. This certification provides the basis for licensure in a number of states. The NCCAOM also offers a certificate in herbal medicine that does not lead to licensure at present but is beginning to be used in some states as a basis for practice.

Resources

BOOKS

Mills, Simon, M.A., and Steven Finando, PhD. *Alternatives in Healing*. New York: NAL Penguin, Inc., 1989.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Reid, Daniel P. *Chinese Herbal Medicine*. Boston: Shambhala, 1993.

Stein, Diane. "All Women Are Healers: A Comprehensive Guide to Natural Healing." *Chinese Healing and Acupressure*. Freedom, CA: The Crossing Press, 1996.

Svoboda, Robert, and Arnie Lade. *Tao and Dharma: Chinese Medicine and Ayurveda*. Twin Lakes, WI: Lotus Press, 1995.

PERIODICALS

Bensoussan, Alan, et al."Development of a Chinese Herbal Medicine Toxicology Database."*Journal of Toxicology:Clinical Toxicology*(March 2002): 159.

"Chinese Herbal Extract Safe and Effective for RA."*The Journal of Musculoskeletal Medicine*(January 2002): 43.

Liu, Jue-Chen, et al. "Applications of Soy in Skin Care."*The Journal of Nutrition*(March 2002): 574S.

ORGANIZATIONS

American Association of Oriental Medicine. 433 Front St. Catasaqua, PA 18032. (610) 266-1433 or (888) 500-7999. Fax: (610) 264-2768. aaom1@aol.com.

American Foundation of Traditional Chinese Medicine (AFTCM). 505 Beach Street. San Francisco, CA 94133. (415) 776-0502. Fax: (415) 392-7003.aftcm@earthlink.net.

Florida Institute of Traditional Chinese Medicine. (800) 565-1246. fitcm@gte.net.

Joan Schonbeck
Teresa G. Odle

Trager psychophysical integration

Definition

Trager psychophysical integration therapy, also known as the Tragerwork system of physical integration, is a combination of hands-on tissue mobilization, **relaxation**, and movement reeducation called Mentastics. The underlying principle of psychophysical integration is that clients learn to be lighter, easier, and freer by experiencing lightness, ease, and freedom of movement in their bodies.

The Trager method is a psychologically grounded physical approach to muscle relaxation, which is induced when a practitioner and patient achieve a state of mind called hook-up. Hook-up is described as a connection to a state of grace or powerful and nourishing life force. It is the opposite of strain or effort.

KEY TERMS

Hook-up—A state of effortless connection with a life-enhancing force. Trager practitioners enter a state of hook-up before working with clients in order to focus on their needs. Trager himself described hook-up as a meditative process of "becoming one with the energy force that surrounds all living things."

Mentastics—The active phase of Trager therapy. Mentastics are a form of movement reeducation in which clients learn to reexperience movement as pleasurable and positive.

Tablework—The passive phase of Trager therapy, in which the practitioner uses gentle and noninvasive movements to allow the client to relax deeply and experience physical movement as free and effortless.

Origins

Psychophysical integration therapy began with Dr. Milton Trager (1908–1977), who earned a medical degree in midlife after working out his approach to healing chronic **pain**. Trager was born with a spinal deformity and overcame it through practicing a variety of athletic exercises. At the time that he discovered his approach to bodywork, he was training to become a boxer. His therapy came to public attention when Esalen Institute in California, the famous center of the human potential movement, invited him to give a demonstration of his technique during the mid-1970s. Trager abandoned his private medical practice in 1977 to devote full energy to the development and further understanding of psychophysical integration. The Trager Institute, which continues his work, was founded in 1980.

Benefits

Psychophysical integration therapy has been helpful in relieving muscle discomfort in patients afflicted with polio, muscular dystrophy, **Parkinson's disease**, **multiple sclerosis**, post-stroke trauma, and psychiatric disturbances. The therapy is useful in alleviating such chronic conditions as back and leg pain. Athletes may benefit from this system to increase resilience to injuries and to improve their mental attitudes. In addition, the Trager Institute maintains that Tragerwork helps clients achieve greater mental clarity through the release of "deep-seated physical and mental patterns."

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Description

The Trager method consists of two parts, a passive aspect referred to as tablework and an active aspect called Mentastics, which is a self-care **exercise** program. Although the benefits of the Trager approach are said to be cumulative, practitioners and clients appear to be free to set their own schedules for a series of sessions. There is no minimum number of sessions that clients must agree to take.

Tablework

The tablework is performed on a comfortable padded table. Sessions last about 60-90 minutes. The practitioner moves the client in ways that he or she naturally moves, in such a way that he or she experiences how it feels to move effortlessly and freely on one's own. The movements resemble general mobilization techniques, and incorporate some manual, cervical, and lumbar traction. The goal of tablework is to allow the client "slowly to give up muscular and mental control and sink into a very deep state of relaxation not unlike that experienced in hypnosis."

Mentastics

Mentastics are free-flowing dance-like movements intended to increase the client's self-awareness, as well as providing tools to help the client move through and control chronic pain. The client is encouraged to "let go," which means that they are asked to begin a movement, then release their muscle tension and allow the weight of the body part involved to complete the motion. By experiencing movement as something pleasurable and positive rather than painful or negative, clients begin to loosen up, learn new movements more easily, and even begin inventing their own. In the early stages of treatment, clients are advised to do Mentastic movements at home for 10–15-minute sessions, three times per day.

Preparations

Prior to a session of tablework, the client dresses for comfort, "with a minimum of swimwear or briefs," according to the Trager Institute. The client is also covered with a drape. No oils or lotions are used.

The practitioner prepares for the session by clearing his or her mind of everything but the client, until he or she achieves a state of hook-up. This attitude of "relaxed meditative awareness" on the part of the practitioner is one of the unique features of Tragerwork. It is described as allowing the therapist "to connect deeply with the recipient in an unforced way and enables the practitioner to perceive the slightest responses from the [client's] body."

Precautions

Because of the unusual sensitivity and heightened awareness that is associated with the practitioner's touch, pain should never result from tablework sessions. It is important for clients to alert the practitioner to any pain associated with either the tablework or the Mentastics program.

Although the movements used in Trager tablework are gentle and noninvasive, clients who have had recent injuries or surgery should wait to heal before undertaking a course of Tragerwork.

Side effects

The Trager method should not produce physical side effects when employed by a qualified practitioner. It is possible that some clients may have emotional reactions associated with the release of physical patterns acquired as a response to trauma, but such reactions are unusual.

Research and general acceptance

Tragerwork, like other forms of bodywork, has gained increasing acceptance as a form of treatment since the 1980s. In 2000 there were 1,200 certified psychophysical integration practitioners in 15 countries worldwide. The therapy has been reported as a commonly employed treatment for mainstream athletes. In addition, the National Institutes of Health lists psychophysical therapy as a mind-body form of complementary alternative medicine.

Training and certification

Practitioners of psychophysical therapy undergo classroom instruction as well as a directed practice (internship) where they apply the learned techniques. Psychophysical therapy is demanding, and proficiency in the practice results only after dozens of therapy sessions have been completed. As many as 100 sessions may be given before the student practitioner achieves the appropriate mental and physical state to communicate an effortless way of being.

Practitioner certification is available for Tragerwork. The curriculum at the Florida Institute of Psychophysical Integration involves a 15-day (150-hour) program of study. Course work progresses through three phases. The initial phase, independent study, is followed by a residential internship. A third phase of combined work and study brings the student to sufficient mastery of the Trager method for certification.

Guidelines for acceptance at the Florida Institute include a college degree and a background in

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

MILTON TRAGER (1909–1997)

Milton Trager was a medical doctor and a somatic educator, specializing in body learning. He was a contemporary of F. Matthias Alexander, Moshe Feldenkrais, and Ida Rolf.

As a young man in the 1920s, he occupied himself with gymnastics and boxing. Through his intensely physical pursuits, he arrived at his self-taught body learning theories. The techniques that he nurtured emphasized body control over strength, prowess, and endurance. For example, in striving to leap as high as possible, Trager focused his concentration on landing as softly as possible. He obtained a degree in physical medicine before serving in the military during World War II.

Upon his return, Trager funded medical school with his GI benefits. He established a private practice and spent the ensuing 50 years refining his body learning techniques and assisting afflicted individuals in the process. When Trager's father was stricken with sciatic pain, Trager learned to relieve the spasms by hand. In time he learned to alleviate the symptoms of polio victims and others who suffered from muscle spasms.

Trager established the Trager Institute in the 1970s to propagate the techniques that he developed. By the year 2000, an estimated 2,000 students and practitioners had embraced the Trager Approach.

Trager lived with his wife, Emily, in Southern California at the time of his death in January 1997.

counseling, touch, and massage. Also required are an understanding of the human muscular system and the completion of preliminary postural integration studies. Students must be at least 25 years of age.

Resources

BOOKS

Juhan, Deanne. *Job's Body*. Station Hill Press, 1987.

Trager, Milton, M.D. *Trager Mentastics: Movements as a Way to Agelessness*. Station Hill Press, 1987.

ORGANIZATIONS

Florida Institute of Psychophysical Integration: Quantum Balance. 5837 Mariner Drive. Tampa, FL 33609-3411. (813) 186-2273. Fax: (813) 287-2870. Dr.Joy@Johnson Mail.com.

Trager Institute. 21 Locust Avenue. Mill Valley, CA 94941-2806. (415) 388-2688. Fax: (415) 399-2710. admin@trager.com. http://www.trager.com.

Gloria Cooksey

Trancendental meditation *see* **Meditation**

Transient ischemic attack *see* **Stroke**

Trefoil *see* **Red clover**

Tremor

Definition

Tremor is an unintentional (involuntary), rhythmical alternating movement that may affect the muscles of any part of the body. Tremor is caused by the rapid alternating contraction and **relaxation** of muscles and is a common symptom of diseases of the nervous system (neurologic disease).

Description

Occasional tremor is felt by almost everyone, usually as a result of fear or excitement. However, uncontrollable tremor or shaking is a common symptom of disorders that destroy nerve tissue such as **Parkinson's disease** or **multiple sclerosis**. Tremor may also occur after **stroke** or head injury. Other tremor appears without any underlying illness.

Causes and symptoms

Tremor may be a symptom of an underlying disease, or it may be caused by drugs. It may also exist as the only symptom (essential tremor).

Underlying disease

Some types of tremor are signs of an underlying condition. About 1.5 million Americans have Parkinson's disease, a disease that destroys nerve cells. Severe shaking is the most apparent symptom of Parkinson's disease. This coarse tremor features four to five muscle movements per second. These movements are evident at rest but decline or disappear during movement.

Other disorders that cause tremor are multiple sclerosis, Wilson's disease, **mercury poisoning**, thyrotoxicosis, and liver encephalopathy.

A tremor that gets worse during body movement is called an "intention tremor." This type of tremor is a sign that something is amiss in the cerebellum, a region

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Computed tomography (CT) scan—An imaging technique in which cross-sectional x rays of the body are compiled to create a three-dimensional image of the body's internal structures.

Essential tremor—An uncontrollable (involuntary) shaking of the hands, head, and face. Also called familial tremor because it is a sometimes inherited, it can begin in the teens or in middle age. The exact cause is not known.

Intention tremor—A rhythmic purposeless shaking of the muscles that begins with purposeful (voluntary) movement. This tremor does not affect muscles that are resting.

Liver encephalopathy—A condition in which the brain is affected by a buildup of toxic substances that would normally be removed by the liver. The condition occurs when the liver is too severely damaged to cleanse the blood effectively.

Magnetic resonance imaging (MRI)—An imaging technique that uses a large circular magnet and radio waves to generate signals from atoms in the body. These signals are used to construct images of internal structures.

Multiple sclerosis—A degenerative nervous system disorder in which the protective covering of the nerves in the brain are damaged, leading to tremor and paralysis.

Parkinson's disease—A slowly progressive disease that destroys nerve cells. Parkinson's is characterized by shaking in resting muscles, a stooping posture, slurred speech, muscular stiffness, and weakness.

Thyrotoxicosis—An excess of thyroid hormones in the blood causing a variety of symptoms that include rapid heart beat, sweating, anxiety, and tremor.

Wilson's disease—An inborn defect of copper metabolism in which free copper may be deposited in a variety of areas of the body. Deposits in the brain can cause tremor and other symptoms of Parkinson's disease.

of the brain concerned chiefly with movement, balance, and coordination.

Drugs and tremor

Several different classes of drugs can cause tremor as a side effect. These drugs include amphetamines, antidepressants drugs, antipsychotic drugs, **caffeine**, and lithium. Tremor also may be a sign of withdrawal from alcohol or street drugs.

Essential tremor

Many people have what is called "essential tremor," in which the tremor is the only symptom. This type of shaking affects between three and four million Americans.

The cause of essential tremor is not known, although it is an inherited problem in more than half of all cases. The genetic condition has an autosomal dominant inheritance pattern, which means that any child of an affected parent will have a 50% chance of developing the condition.

Essential tremor most often appears when the hands are being used, whereas a person with Parkinson's disease will most often have a tremor while walking or while the hands are resting. People with essential tremor will usually have shaking head and hands, but the tremor may involve other parts of the body. The shaking often begins in the dominant hand and may spread to the other hand, interfering with eating and writing. Some people also develop a quavering voice.

Essential tremor affects men and women equally. The shaking often appears at about age 45, although the disorder may actually begin in adolescence or early adulthood. Essential tremor that begins very late in life is sometimes called "senile tremor."

Diagnosis

Close attention to where and how the tremor appears can help provide a correct diagnosis of the cause of the shaking. The source of the tremor can be diagnosed when the underlying condition is found. Diagnostic techniques that make images of the brain, such as computed tomography scan (CT scan) or magnetic resonance imaging (MRI), may help form a diagnosis of multiple sclerosis or other tremor caused by disorders of the central nervous system. Blood tests can rule out metabolic causes such as thyroid disease. A family history can help determine whether the tremor is inherited.

Treatment

Neither tremor nor most of its underlying neurological causes can be cured. Tremor caused by

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

medications, or by drug withdrawal, can sometimes be lessened with herbs which relax the nerves and muscle tissue, such as **skullcap** (*Scutellaria laterifolia*), **valerian** (*Valeriana officinalis*), and Jamaican dogwood (*Piscidia piscipula*).

Patients suffering from Parkinson's disease-related tremors may benefit from mucuna seeds (*Mucuna pruriens*). Practitioners of Ayurveda, or traditional Indian medicine, have prescribed mucuna to treat Parkinson's disease (or *Kampavata*) for over 4,000 years. Mucuna contains a natural form of L-dopa, a powerful anti-Parkinson's drug.

Allopathic treatment

Most people with essential tremor respond to drug treatment, which may include propranolol, primidone, or a benzodiazepine. People with Parkinson's disease may respond to anti-Parkinson's drugs.

Research has shown that about 70% of patients treated with botulinus toxin (Botox) have some improvement in tremor of the head, hand, and voice. Botulinus is derived from the bacterium *Clostridium botulinum*. This bacterium causes botulism, a form of **food poisoning**. It is poisonous because it weakens muscles. A very weak solution of the toxin is used in cases of tremor and paralysis to force the muscles to relax. However, some patients experience unpleasant side effects with this drug and cannot tolerate effective doses. For other patients, the drug becomes less effective over time. Medications do not produce any tremor relief in about half of all patients.

Tremor control therapy

Tremor control therapy is a type of treatment that uses mild electrical pulses to stimulate the brain. These pulses block the brain signals that trigger tremor. In this technique, the surgeon implants an electrode into a large oval area of gray matter within the brain that acts as a relay center for nerve impulses and is involved in generating movement (thalamus). The area that is particularly targeted for relief of tremor associated with PD is called the ventralis intermedius nucleus of the thalamus. The electrode is attached to an insulated wire that runs through the brain and exits the skull where it is attached to an extension wire. The extension is connected to a generator similar to a heart pacemaker. The generator is implanted under the skin in the chest, and the extension is tunneled under the skin from the skull to the generator. The patient can control his or her tremor by turning on the generator with a hand-held magnet to deliver an electronic pulse to the brain.

Some patients experience complete relief with this technique, but for others it has no benefit at all. About 5% of patients experience complications from the surgical procedure, including bleeding in the brain. The procedure causes some discomfort, because patients must be awake while the implant is placed. Batteries must be replaced by surgical procedure every three to five years.

Other surgical treatments

A patient with extremely disabling tremor may find relief with a surgical technique called thalamotomy, in which the surgeon destroys part of the thalamus. However, the procedure is complicated by numbness, balance problems, or speech problems in a significant number of cases.

Pallidotomy is another type of surgical procedure sometimes used to decrease tremors from Parkinson's disease. In this technique, the surgeon destroys part of a small structure within the brain called the globus pallidus internus. The globus is part of the basal ganglia, another part of the brain that helps control movement. This surgical technique also carries the risk of permanent disabling side effects.

Fetal tissue transplantation (also called a nigral implant) is a controversial experimental method to treat Parkinson's disease symptoms. This method implants fetal brain tissue into the patient's brain to replace malfunctioning nerves. Unresolved issues include how to harvest the fetal tissue and the moral implications behind using such tissue, the danger of tissue rejection, and how much tissue may be required. Although initial studies using this technique looked promising, there has been difficulty in consistently reproducing positive results. More promising is the development of dopamine-producing cells from neuronal stem cells for transplantation into the brains of patients with PD. A method for producing these dopaminergic cells was patented in 2001.

Small amounts of alcohol may temporarily (sometimes dramatically) ease the shaking. Some experts recommend a small amount of alcohol (especially before dinner). The possible benefits, of course, must be weighed against the risks of alcohol abuse.

Expected results

Essential tremor and tremor caused by neurologic disease (including Parkinson's disease) slowly get worse and can interfere with a person's daily life. While the condition is not life-threatening, it can severely disrupt a person's everyday experiences. One recent finding is that Parkinson's patients are more concerned about the limitations imposed on their

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

functioning and social life by the tremor than they are by the symptom itself.

Prevention

Essential tremor and tremor caused by a disease of the central nervous system cannot be prevented. Avoiding use of such stimulant drugs as caffeine and amphetamines can prevent tremor that occurs as a side effect of drug use.

Resources

BOOKS

Fauci, Anthony S. et al., eds. *Harrison's Principles of Internal Medicine*. New York: McGraw-Hill, 1998.

PERIODICALS

Eskandar, Emad N., G. Rees Cosgrove, Leslie A. Shinobu. "Surgical Treatment of Parkinson Disease. (Contempo Updates Linking Evidence and Experience). " *Journal of the American Medical Association* 286 (December 26, 2001): 3056-3059.

"Neuralstem Patents Methods for Generating Dopamine-Producing Neurons from Neural Stem Cells." *Stem Cell Week* (December 31, 2001): 13.

Whetten-Goldstein, K., et al. "Patients' Perceptions of Living with Parkinson's Disease." *Gerontologist* (October 15, 2001): 281.

ORGANIZATIONS

American Academy of Neurology. 1080 Montreal Ave., St. Paul, MN 55116. (612) 695-1940. http://www.aan.com/public/con.html.

American Parkinson Disease Association. 1250 Hylan Boulevard, Suite 4B, Staten Island, NY 10305-1946. (800) 223-2732. http://www.apdaparkinson. com/.

International Tremor Foundation. 7046 West 105th Street, Overland Park, KS 66212. (913) 341-3880.

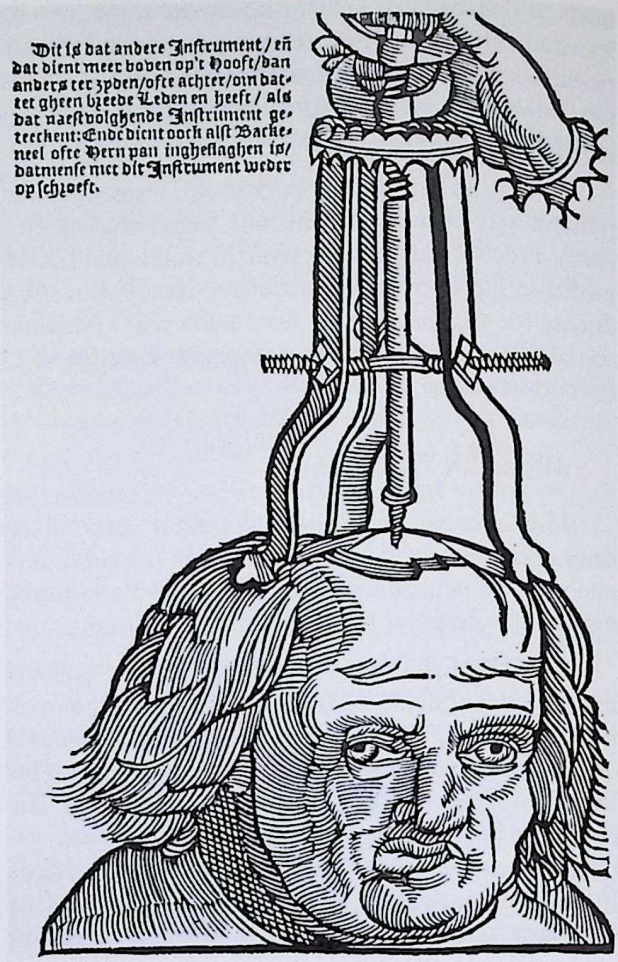
National Parkinson Foundation. 1501 NW Ninth Avenue, Miami, FL 33136. (800) 327-4545. http://www.parkinson.org.

Paula Ford-Martin
Rebecca J. Frey, PhD

Trepanation

Definition

Trepanation is a surgical procedure in which a circular piece of bone is removed from the skull by a special saw-like instrument called a trephine or trepan. The operation is also known as trephination or trephining. The English word "trepan" comes from the Greek word *trypanon*, which means "auger" or "drill."



Trepanation is a surgical procedure in which a circular piece of bone is removed from the skull by a special saw-like instrument called a trephine or trepan. *(The Print Collector / Alamy)*

In standard medical practice, trepanation is occasionally performed by a neurosurgeon in order to relieve pressure on the brain caused by trauma, or to remove a blood clot from brain tissue. In recent years, however, trepanation has been touted by a small group of alternative practitioners as a way to expand one's consciousness through the increase of blood flow to the brain and opening the "third eye," also known as the inner eye or eye of the mind. Practitioners of kundalini **yoga** refer to the opening of the third eye, located in the middle of the forehead, as entry into a new and completely different dimension of reality.

Origins

Trepanation is the oldest surgical procedure known to humans; skulls of Cro-Magnon people estimated to be 40,000 years old have been discovered with

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Engram—A permanent trace left in nerve tissue by a stimulus; in psychology, a latent memory picture or lasting trace left in the psyche by any experience.

Fontanelle—A membrane-covered soft spot in an infant's skull where the bone has not yet completely formed.

Kundalini yoga—A type of yoga that focuses on the body's innate psychospiritual energy (*kundalini shakti* or "serpent power" in Sanskrit) through breathing exercises, meditation, yoga postures, and chanting. Its goal is to empower the individual's consciousness to merge with universal consciousness.

Meninges—The three layers of membranous tissue that form a protective cover for the brain and spinal cord. The outermost layer is the dura mater, the middle is the arachnoid mater, and the innermost is the pia mater. In trepanation, a piece of the skull is removed without cutting through the underlying meninges.

Third eye—A term used to refer to the inner eye or eye of the mind. Opening the third eye refers to admission to a new level of consciousness.

Trephine—A saw- or drill-like instrument used to remove a circular piece of bone from the skull. It is also called a trepan.

circular holes as large as 2 in in diameter. The Incas of Peru are known to have performed trepanation as early as 2000 B.C. It is thought that these operations were performed to treat people suffering from psychotic disorders, **epilepsy**, or chronic migraine headaches by allowing demons to escape through the hole in the skull.

The oldest written reference to trepanation comes from Hippocrates (c. 400 B.C.), whose descriptions of head injuries refer to it as a necessary treatment for skull **fractures** with bone fragments pushed inward and compressing the brain. Celsus and Galen refer to Roman surgeons of the first century A.D. as performing trepanations with implements resembling carpenters' drills. Trephines were refined in various ways through the Middle Ages, the Renaissance, and the eighteenth and nineteenth centuries. It should be emphasized that trepanations were done by ancient, medieval, and early modern physicians to relieve pressure on brain tissue—not to perform surgery on the brain itself. Care was taken not to penetrate the dura mater, which is the outermost of the three meninges or membranes that lie beneath the skull and form a protective cover for the brain and spinal cord. Historians of medicine estimate, however, that as many as 40 percent of patients died from **infections** following the procedure rather than from the surgery itself.

Contemporary interest in trepanation as a path to expanded consciousness goes back only to the 1960s. Bart Huges, a Dutchman who was expelled from medical school in the early 1960s for failing his examinations and using **marijuana**, is generally considered the founder of alternative trepanation. Huges developed a theory that he called brainbloodvolume while he was smoking marijuana at a party on the island of Ibiza. He noticed another guest standing on his head to increase the intoxicating effects of the drug. Huges concluded that the expansion of consciousness associated with hallucinogens results from an increased volume of blood in the brain. He reasoned that the removal of a piece of the skull would allow an even larger amount of blood to enter the brain, speeding up the delivery of oxygen and glucose to the brain cells as well as the removal of toxins. Huges had also learned in medical school that infants are born with soft spots in the skull known as fontanelles, which are membrane-covered areas where the bone has not yet completely formed. He concluded that trepanation would help to return an adult's consciousness to the intense imagination and vivid dreams of a child.

Hugues—who never obtained a medical degree—managed to convert several individuals to his brainbloodvolume theory—among them Peter Halvorson, who underwent trepanation and credits it with curing his **depression**, increasing his energy level, and giving him a permanent drug-free high. As of 2004, Halvorson is the head of the International Trepanation Advocacy Group (ITAG), headquartered in Wernersville, Pennsylvania. The ITAG web site includes accounts of a pilot study of six volunteers who were trepanned in June 2002 as well as personal testimonials from others who have undergone the procedure.

Benefits

According to the testimonials collected by Halvorson, trepanation confers the following benefits:

- relief from anxiety, depression, and other mood disorders
- feelings of freedom and serenity
- a richer emotional life
- greater ability to recall dreams on awaking
- decrease in frequency and severity of chronic headaches
- higher energy levels

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Other people who have undergone trepanation, however, maintain that these benefits are only temporary and may be due to the **placebo effect**. A man who performed trepanation on himself in 2000 reported to an interviewer from an online body modification journal that he had "come to the frustrating conclusion [four weeks after the procedure] that the trepanation has had no lasting effect.... Trepanation has no more physiological effect than any other trauma.... it does not do what many hope it will."

Description

Surgical trepanation

A standard trepanation—most commonly done to relieve pressure on the brain when a portion of the skull has been pushed inward—is performed with the patient under general anesthesia under sterile conditions. The neurosurgeon cuts the scalp over the injured area, pulls back a flap of skin, and bores a hole in the underlying skull with a trephine. After the depressed bone has been removed together with any **blood clots** that have formed, the surgeon carefully cleanses the area and closes the incision.

Alternative trepanation

Some alternative trepanations have been performed by people on themselves, with friends to assist with the procedure. In the early 1980s, several people in England performed the entire operation on themselves, with others present to help only if an emergency arose. The reason for this stipulation was to protect the others in the room from criminal prosecution for performing surgery without credentials. The trepanner typically shaved his or her head and injected a local anesthetic. He or she then made an incision in the scalp over the area to be trepanned. Next, a hole between 1/4 and 1/2 in in diameter was cut in the skull with a foot-powered dental drill. The trepanner then removed the piece of skull, cleaned the incision, and bandaged it. The scalp gradually grew back over the hole, leaving only a small permanent indentation. More recently, however, trepanners have allowed others to assist with the operation; the man who was interviewed for the online journal had three friends who covered the walls of his room with plastic sheeting, did part of the drilling, and rinsed out the incision from time to time with sterile saline solution. He reported that the entire procedure took about 3-1/2 hours.

The participants in the ITAG pilot study, however, went to a clinic in Monterrey, Mexico, for their trepanations. The ITAG web site states plainly that "Self-trepanation today is a very selfish act. It opens the door for no one and you'd always have to keep it a secret. The public mind can't handle this. You'd be labeled 'insane.'" According to the ITAG web site, the surgeon who presently performs the procedures for Halvorson's groups was trained in Texas and is board-certified in four countries (France, Spain, Mexico, and the United States). The trepanations take about 35 minutes to complete. The cost of the operation is $2400–$3600, not including travel and hotel fees.

Preparations

People who have performed trepanations on themselves have prepared by assembling the needed equipment and setting aside a room in their house to serve as the operating room.

ITAG requires persons interested in trepanation (who must be 18 or older) to go through a period of mental preparation known as engramming, which Halvorson defines idiosyncratically as "becom[ing] thoroughly acquainted with the terminology of conscious expansion." In addition, the volunteers must sign an informed consent form and a protocol that indicates that they understand the procedure is considered experimental. They are given MRIs before and after the trepanation.

Precautions

Mainstream medical professionals uniformly warn against alternative trepanation because it is an extremely risky procedure—particularly if done by amateurs—with no certain or permanent benefits. Because scalp incisions bleed profusely, people who attempt to trepan themselves are likely to find that the flow of blood obscures their field of vision, thus increasing the risk of self-injury.

Side effects

The potential side effects of alternative trepanation are severe, even life-threatening; they include permanent injury or death from infections, **stroke**, direct damage to brain tissue, generalized encephalitis, epilepsy, or brain abscesses.

Research and general acceptance

Trepanation is not accepted as an alternative therapy by any mainstream physicians or surgeons in the United States or Canada. In addition to the dangers of the procedure itself, neurosurgeons who have studied

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

the claims made for trepanation say that Huges' brain-bloodvolume theory is anatomically impossible.

Training and certification

As of 2004, there are *no* reputable medical school courses, training institutions, or licensing procedures in the United States or Canada for trepanation performed as a means to altered or higher consciousness.

Resources

BOOKS

Michell, John. *Eccentric Lives and Peculiar Notions*. Secaucus, NJ: Citadel Press, 1984.

PERIODICALS

Clower, W. T., and S. Finger. "Discovering Trepanation: The Contribution of Paul Broca." *Neurosurgery* 49 (December 2001): 1417–1425.

Facchini, F., E. Rastelli, L. Ferrero, and E. Fulcheri. "Cranial Trepanation in Two Skulls of Early Medieval Italy." *Homo* 53 (2003): 247–254.

Van Alphen, H. A. "Elective Trepanation for Acute Epidural Hematoma by Dr. Nicolaes Tulp (1593–1674)." *Neurosurgery* 48 (February 2001): 401–404.

Weber, J., and A. Czarnetzki. "Trepanations from the Early Medieval Period of Southwestern Germany—Indications, Complications and Outcome." *Zentralblatt für Neurochirurgie* 62 (February 2001): 10–14.

ORGANIZATIONS

American Association of Neurological Surgeons (AANS). 5550 Meadowbrook Drive, Rolling Meadows, IL 60008. (888) 566-AANS or (847) 378-0500. Fax: (847) 378-0600. http://www.aans.org.

International Trepanation Advocacy Group (ITAG), Inc. P. O. Box 65, Wernersville, PA 19565. (610) 693-6869. Fax: (610) 693-3261.

OTHER

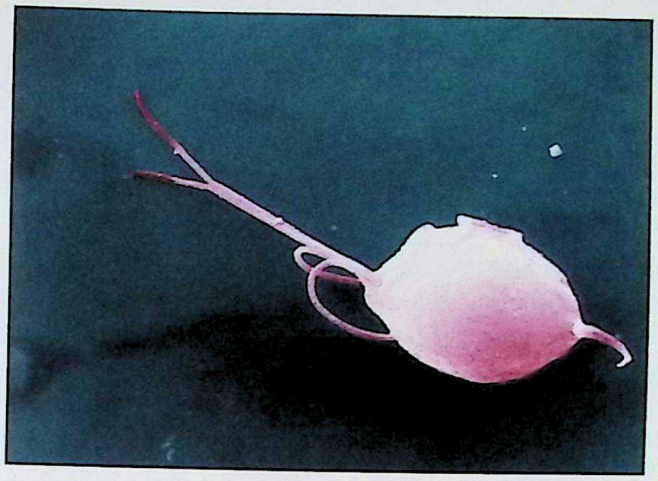
Henderson, Bryan. "Trepanation." Interview conducted for *Body Modification Ezine* (BME). http://www.bmezine.com/news/people/A10101/trepan.

Rebecca Frey

Trichomoniasis

Definition

Trichomoniasis refers to an infection of the genital and urinary tract. It is the most common sexually transmitted disease, affecting about 120 million women worldwide each year.



Scanning electron micrograph (SEM) of *Trichomonas vaginalis*, the human parasitic flagellate that causes the sexually transmitted disease trichomoniasis. *(BSIP / Photo Researchers, Inc.)*

Description

Trichomoniasis is caused by a protozoan (the smallest, single-celled members of the animal kingdom). *Trichomonas vaginalis* is almost always passed through sexual contact. Trichomoniasis is primarily an infection of women's vaginal and urinary tracts. A woman is most susceptible to infection just after having completed her menstrual period. Men may carry the organism unknowingly, since infection in men may cause mild or no symptoms. Men may also experience urethral discharge or persistent urethritis. Trichomoniasis is associated with HIV transmission and may be associated with adverse **pregnancy** outcomes.

Causes and symptoms

Because trichomoniasis is a sexually transmitted disease, it occurs more often in individuals who have multiple sexual partners. The protozoan is passed to an individual by contact within the body fluids of an infected sexual partner. It often occurs simultaneously with other sexually transmitted diseases, especially **gonorrhea**.

In women, the symptoms of trichomoniasis include an unpleasant vaginal odor, and a heavy, frothy, yellow discharge from the vagina. The genital area (vulva) is often very itchy, and there is frequently **pain** with urination or with sexual intercourse. The labia (lips) of the vagina, the vagina itself, and the cervix (the narrowed, lowest segment of the uterus which extends into the upper part of the vagina) will be bright red and irritated. Women may also experience lower abdominal discomfort.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Metronidazole—An anti-infective agent regarded as the best available drug for treating trichomoniasis. It is sold under the trade names Flagyl and MetroGel.

Protozoan—A one-celled organism belonging to the simplest phylum of the animal kingdom. Trichomoniasis is caused by a protozoan.

Urethritis—Inflammation of the urethra, which is the canal that carries urine from the bladder to the outside of the body.

In men, there may be no symptoms at all. Some men notice a small amount of yellowish discharge from the penis, usually first thing in the morning. There may be some mild discomfort while urinating, testicular pain or tenderness, or lower abdominal pain. Some men infected with trichomoniasis experience persistent urethritis.

The use of antibiotics is a contributing factor to recurrent trichomoniasis in some women because antibiotics affect the balance of bacteria in the vagina, allowing such organisms as *T. vaginalis* to multiply more rapidly.

Diagnosis

Diagnosis is easily made by taking a sample of the discharge from the woman's vagina, or from the opening of the man's penis. The sample is put on a slide, and viewed under a microscope. The protozoa, which are able to move about, are easily viewed.

Trichomoniasis tends to be underdiagnosed in men because of the relative mildness of symptoms in men and insufficiently sensitive diagnostic tests. The recent introduction of DNA amplification, however, indicates that the incidence of trichomoniasis in men is much higher than was previously thought.

Treatment

Cure of trichomoniasis may be difficult to achieve with alternative treatments. Some practitioners suggest eliminating sweets and carbohydrates from the diet and supplement with **antioxidants**, including vitamins A, C, and E, and **zinc**. Naturopaths may recommend treatment with two douches (a wash used inside the vagina), alternating one in the morning and one at bedtime. One douche contains the herbs **calendula** (*Calendula officinalis*), **goldenseal** (*Hydrastis canadensis*), and **echinacea** (*Echinacea* spp.); the other douche contains plain yogurt with live **acidophilus** cultures. The herbal douche helps to kill the protozoa, while the yogurt reestablishes healthy flora in the vagina. **Tea tree oil** is another alternative remedy for trichomoniasis. Acidifying the vagina by douching with boric acid or vinegar may also be useful. Although not a cure, *The Gynecological Sourcebook* suggests inserting a **garlic** (*Allium sativum*) suppository (a peeled whole clove wrapped in gauze) every 12 hours for symptomatic relief.

Other remedies include vaginal suppositories that include the ingredient acidophilus once a day for three days. An alternative medicine practitioner can recommend the correct mixture. A vaginal douche consisting of **grapefruit seed extract** may also help relieve symptoms.

Allopathic treatment

The usual treatment is a single large dose of metronidazole (Flagyl) or split doses over the course of a week. Some sources suggest clotrimazole (Gyne-lotrimin, Mycelex) as an alternative treatment showing a lower cure rate. Application of Betadine, a concentrated antiseptic solution, is another recommendation. However, Betadine is messy, stains, and should not be used by pregnant women. However, the Centers for Disease Control (CDC) states that there are no effective alternatives to therapy with metronidazole available. Topical treatment of metronidazole is not advised. Individual evaluations are recommended for those who are allergic to metronidazole or who experience treatment-resistant trichomoniasis. Sexual partners of an infected individual must all be treated, to prevent the infection from being passed back and forth. Sexual intercourse should be avoided until all partners are cured.

As of late 2003, the number of cases of metronidazole-resistant trichomoniasis appears to be increasing rapidly. Some success has been reported with the broad-spectrum anti-parasitic drug nitazoxanide, but further research needs to be done. A group of researchers in Thailand is currently investigating the effectiveness of a group of drugs known as bisquaternary quinolinium salt compounds in treating trichomoniasis.

Women who are taking antibiotics for other illnesses should speak to their health care provider about the possibile effects of the medication(s) on the balance of organisms in their vagina.

Expected results

Prognosis is excellent (90–95%) with appropriate treatment of the patient and all sexual partners.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Without treatment, the infection can remain for a long time, and can be passed to all sexual partners.

Prevention

All sexually transmitted diseases can be prevented by using adequate protection during sexual intercourse. Effective forms of protection include male and female condoms. Other preventive measures are similar to those for other forms of **vaginitis** including wearing loose cotton clothing and not using douches, vaginal deodorants, or sprays.

Resources

BOOKS

Nash, Theodore E., and Peter F. Weller. "Protozoal Intestinal Infections and Trichomoniasis." *Harrison's Principles of Internal Medicine, 14th ed.* Edited by Anthony S. Fauci, et al. New York: McGraw-Hill, 1998.

Pelletier, Kenneth R., MD. *The Best Alternative Medicine*, Part II, "CAM Therapies for Specific Conditions: Vaginitis." New York: Simon & Schuster, 2002.

Plorde, James J. "Introduction to Pathogenic Parasites: Pathogenesis and Chemotherapy of Parasitic Diseases." *Sherris Medical Microbiology: An Introduction to Infectious Diseases*. Edited by Kenneth J. Ryan. Norwalk, CT: Appleton and Lange, 1994.

Rosenthal, M. Sara. *The Gynecological Sourcebook*. Los Angeles, Lowell House. 1994.

PERIODICALS

Chavalitshewinkoon-Petmitr, P., M. Ramdja,S. Kajorndechakiat, et al. "In vitro Susceptibility of *Trichomonas vaginalis* to AT-Specific Minor Groove Binding Drugs" *Journal of Antimicrobial Chemotherapy* 52 (August 2003): 287–289.

Ching, Susanne, and Phuong H. Nguyen. "Vaginitis." *eMedicine*, 5 April 2002. http://emedicine.com/med/topic2358.htm.

Davis, Annabel. "*Trichomonas vaginalis*: Signs, Tests, and Treatment." *Nursing Times* 94 (November 25-December 1, 1998): 58-59.

Dunne, R. L., L. A. Dunn, P. Upcroft, et al. "Drug Resistance in the Sexually Transmitted Protozoan *Trichomonas vaginalis*." *Cell Research* 13 (August 2003): 239–249.

Pirotta, M. V., J. M. Gunn, and P. Chondros. "'Not Thrush Again!' Women's Experience of Post-Antibiotic Vulvovaginitis." *Medical Journal of Australia* 179 (July 7, 2003): 47–49.

Schwebke, J. R., and E. W. Hook, 3rd. "High Rates of *Trichomonas vaginalis* Among Men Attending a Sexually Transmitted Diseases Clinic: Implications for Screening and Urethritis Management." *Journal of Infectious Diseases* 188 (August 1, 2003): 465–468.

OTHER

Centers for Disease Control and Prevention (CDC). Fact Sheet:*Trichomonas* Infection. http://www.cdc.gov/ncidod/dpd/parasites/trichomonas/factsht_trichomonas.htm.

Kathy S. Stolley
Rebecca J. Frey, PhD

Trigger point therapy

Definition

Trigger point therapy is a bodywork technique that involves the application of pressure to tender muscle tissue in order to relieve **pain** and dysfunction in other parts of the body. It may also be called myofascial (*myo* meaning muscle, *fascial* meaning connective tissue) trigger point therapy. Trigger point therapy is sometimes regarded as one of a group of treatment aproaches called neuromuscular therapy or NMT. **Myotherapy**, developed by Bonnie Prudden, is a related type of trigger point therapy.

Origins

Trigger point therapy was developed by Dr. Janet Travell in the United States in the 1940s; she is credited with having first used the phrase "trigger point" in print in 1942. Through her work and events in her personal life, Travell advanced the theory that pain experienced in one part of the body is actually caused by an injury or dysfunction in another part of the body. Ultimately, she mapped what she termed the body's trigger points and the manner in which pain radiates to the rest of the body. Travell's work came to national attention when she treated President John F. Kennedy for his back pain.

Trigger points are thought to result from a variety of causes, including birth trauma, **hypoglycemia**, vitamin B_6 deficiency, food **allergies**, traumatic injuries, poor posture, skeletal asymmetry, overexertion, or such diseases of the digestive tract as ulcers and **irritable bowel syndrome**. During times of physical or emotional **stress**, the points cause muscles to spasm. Travell's therapy called for the injection of saline (a salt solution) and procaine (also known as Novocaine, an anesthetic) into the trigger point. Although beneficial in the relief of pain, the injections are a painful procedure for some people.

In the 1970s, Bonnie Prudden, a physical fitness and **exercise** therapist, found that applying sustained pressure to a trigger point also relieved pain. Prudden

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Bodywork—Any healing technique involving hands-on massage or manipulation of the body.

Myotherapy—A form of trigger point therapy that relies on deep massage of the trigger points rather than injections to relieve pain.

Trigger point—An area of intense irritability within soft tissue structures, characterized by local soreness and sometimes referred pain.

developed her techniques over a number of years and called the treatments myotherapy. Myotherapy is beneficial to patients who find that trigger point injections are too painful.

Benefits

Trigger point therapy is said to interrupt the neural signals that cause both the trigger point and the pain. The object is to eliminate pain and to re-educate the muscles into pain-free habits. In this manner, the swelling and stiffness of neuromuscular pain is reduced, range of motion is increased, and flexibility and coordination are improved. The therapy can also relieve tension and improve circulation.

The list of conditions that benefit from trigger point therapy include arthritis; **carpal tunnel syndrome**; chronic pain in the back, knees, and shoulders; headaches; menstrual cramps; **multiple sclerosis**; **muscle spasms**, tension, and weakness; postoperative pain; **sciatica**; **temporomandibular joint syndrome** (TMJ); **tendinitis**; and whiplash injuries.

Description

Typically, a health care professional refers a patient to a trigger point therapist. The therapist will take a history of injuries suffered, occupations held, and sports played. He or she will ask the individual to describe the pain and its location in detail.

The therapist will then probe the area of the coordinating trigger point. An injection of lidocaine, saline, or other medicines, or probing with a dry needle, may be done. In myotherapy, once the point is found, the therapist will apply sustained pressure using the fingers, knuckles, or elbows for several seconds.

Pain relief is often experienced immediately. Following the injection or pressure treatment, the therapist will then gently stretch the muscles of the trigger point. Finally, a series of exercises is taught to the individual to reeducate the muscles and to prevent the pain from returning.

Workbooks are now available to help patients maximize the benefits of trigger point therapy through self-treatment at home.

Preparation

Persons should consult a health care professional before beginning trigger point therapy to insure that the pain is not caused by fracture or disease. In fact, a certified trigger point therapist will not provide services to someone who is not referred by a health care professional.

The therapy is usually conducted on a padded table or treatment chair. The individual should wear comfortable, loose-fitting clothing. An ongoing, honest interaction with the therapist will facilitate the sessions.

Treatment sessions can last 30 minutes to an hour. The range of cost is approximately $45–60 per session. Acute pain can be relieved in as little as one session. Chronic pain may require numerous treatments.

Precautions

Persons with infectious diseases, open sores, or recent injuries should wait until they have recovered before beginning trigger point therapy.

Persons taking anticoagulant prescription drugs may experience bruising after trigger point therapy.

Research and general acceptance

Research into the effects of trigger point therapy is sketchy, although the growing acceptance of **acupuncture** within the mainstream medical community has led to a few recent published studies of trigger point therapy. Interest in trigger point therapy is growing in Europe and Asia as well as in the United States; one recent study by a group of Japanese researchers reported that trigger point therapy was superior to standard allopathic drugs in relieving the pain of renal **colic**.

The American Academy of Pain Management (AAPM) reports that studies of trigger point therapy on back pain and headaches have been conducted on groups of fewer than 10 people. The AAPM does, however, recognize trigger point therapy as a valid approach to the management and relief of pain.

In the traditional medical community, trigger point therapy is viewed as a complement to treatment. Patients are referred by a variety of health

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

professionals including psychiatrists, orthopedic surgeons, and anesthesiologists.

Training and certification

The Pittsburgh School of Pain Management, formerly the Academy for Myofascial Trigger Point Therapy, is located in Pittsburgh, Pennsylvania. The school is licensed by the Commonwealth of Pennsylvania and offers a 650-hour program for persons seeking certification as myofascial trigger point therapists. Eligible entrants are those with such allied health backgrounds as nursing, dentistry, **massage therapy**, physical therapy, occupational therapy, exercise physiology, and sports training. Additionally, a background in biology, anatomy, **nutrition** and/or physiology are often accepted as qualifications. Graduates of the Academy are allowed to sit for certification by the National Certification Board for Trigger Point Myotherapy.

Practitioners carrying the Bonnie Prudden myotherapist certification will have completed a nine-month, 1,300-hour training program and passed the board examination. Therapists are re-certified with a 45-hour training program every other year.

Resources

BOOKS

Credit, Larry, Sharon G. Hartunian, and Margaret J. Nowak. *Your Guide to Complementary Medicine*. Garden City Park, New York: Avery Publishing Group, 1998.

Davies, Clair. *The Trigger Point Therapy Workbook: Your Self-Treatment Guide for Pain Relief*. Oakland, CA: New Harbinger Publications, 2001.

Prudden, Bonnie. *Myotherapy: Bonnie Prudden's Complete Guide to Pain-Free Living*. New York: Ballantine 1984.

Travell, Janet, M.D. *Office Hours: Day and Night*. Cleveland, OH: New American Library, 1968.

PERIODICALS

Baldry, P. "Superficial Versus Deep Dry Needling." *Acupuncture in Medicine* 20 (August 2002): 78-81.

Iguchi, M., Y. Katoh, H. Koike, et al. "Randomized Trial of Trigger Point Injection for Renal Colic." *International Journal of Urology* 9 (September 2002): 475-479.

Irnich, D., N. Behrens, J. M. Gleditsch, et al. "Immediate Effects of Dry Needling and Acupuncture at Distant Points in Chronic Neck Pain: Results of a Randomized, Double-Blind, Sham-Controlled Crossover Trial." *Pain* 99 (September 2002): 83-89.

ORGANIZATIONS

American Academy of Pain Management. 13947 Mono Way #A, Sonora, CA 95370. (209) 533-9744. www.aapainmanage.org.

American Academy of Pain Medicine. 4700 W. Lake, Glenview, IL 60025. (847) 375-4731. www.painmed.org.

Bonnie Prudden Pain Erasure, LLC. P.O. Box 65240, Tucson, AZ 85728-5240. (800) 221-4634. www.bonnieprudden.com.

Pittsburgh School of Pain Management. 1312 E. Carson Street, Pittsburgh, PA 15203. (412) 481-2553. www.painschool.com.

Mary McNulty
Rebecca J. Frey, PhD

Triphala

Description

Triphala, an ancient herbal blend, is one of the most commonly used herbal remedies in the Ayurvedic system of healing. **Ayurvedic medicine** originated in ancient India and has developed over thousands of years, and is one of the oldest systems of healing. Thus triphala is one of the longest used herbal remedies in the world. Triphala, meaning "three fruits," is made from the fruits of three trees that grow throughout India and the Middle East, including amalaki fruit (*Embelica officinalis*), bibhitaki fruit (*Terminalia belerica*), and haritaki fruit (*Terminalia chebula*). In preparing triphala, these fruits are dried, ground into powder, and then blended; all according to the precision of Ayrurvedic tradition together.

Amalaki fruit, also called amla or Indian gooseberry, is renowned as one of the best rejuvenating herbs in Ayurvedic medicine. It contains more **vitamin C** than any almost all other fruits, consisting of nearly 3,000 mg of vitamin C per piece. It has been nicknamed the nurse herb in India, because of its widespread effectiveness against sickness, and has cooling effects on the body. Haritaki is also considered one of the most useful of Ayurvedic herbs, particularly for its rejuvenating, warming, and balancing effects. Combined with bibhitaki fruit, another tonifying and warming herb, these three compounds are believed to have healing and balancing effects on all three of the principle body types or constitutions (termed doshas) in Ayurvedic medicine. As a balanced formula, triphala can be effectively used by most people and is prescribed for a variety of health conditions.

General Use

Triphala is taken as a general health tonic, useful for all body types and a variety of conditions. It is commonly prescribed to tone and strengthen the

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Dosha—One of the three physical constitution types (vata, pitta, and kapha) in Ayurvedic medicine.

Intestinal flora—The friendly bacteria that live in the digestive tract and aid digestion of food.

digestive system, particularly in cases of weak digestion and **constipation**, and has a mild laxative effect. Triphala is a gentle laxative that can be used daily and is not habit-forming, and has no adverse effects on the intestinal flora (the microorganisms that aid digestion). It is said to improve the function of the stomach and intestines, and is also prescribed for cases of excess stomach acid. Triphala regulates and detoxifies the bowels, improves overall health by increasing the efficiency and absorption of digestion, and reduces **gas**. It has a balancing effect on the body's metabolism, and is prescribed to restore appetite. The herbal compound also helps the body to eliminate excess fat, by improving metabolism. Because of its gentle properties, triphala is recommended as a digestive aid for the elderly and for those with sensitive stomachs.

In addition to restoring the balance of the digestive tract, triphala is used as a blood builder and purifier, and may increase red blood cell count and hemoglobin levels. Some healers prescribe it for diabetes, for its balancing effect on blood sugar levels. It also has anti-cholesterol and anti-mucus properties in the body. Triphala is believed to strengthen the kidneys and liver, and is prescribed for **hepatitis** sufferers.

Triphala is a source of vitamin C and is believed to improve the function of the immune system. The herbs in triphala have anti-inflammatory properties. The remedy is prescribed for **gout**, a form of arthritis caused by excess uric acid in the body, and other inflammatory conditions. Triphala is said to have a calming and tonic effect on the nervous system, and is recommended for **Alzheimer's disease** and other degenerative disorders of the nervous system.

Another use for triphala is to strengthen the eyes, particularly in cases of **cataracts**, **glaucoma**, and **conjunctivitis**. It can be used as an eyewash and may reduce soreness and redness in the eyes. Triphala can also be applied topically to the skin, to speed the healing of **bruises** and **sunburn**.

Preparations

Triphala is available as a powder, and in tablets and capsules as well. For those who do not like very strong and bitter tastes, tablets or capsules are recommended. Triphala can be taken daily. As a digestive tonic and laxative, it is best taken in the evening, about two hours after eating, and at least 30 minutes before bedtime. No food should be eaten for one and a half hours after ingestion. Tablets and capsules can be swallowed, while the powder can be mixed thoroughly in a small amount of cold or warm water. The powder can also be simmered in water and drunk as a medicinal tea.

Individuals should start with small amounts of triphala, a quarter teaspoon of the powder or one tablet, and gradually increase the dosage until finding the optimal dosage. No more than one teaspoon of the powder or four to six tablets or capsules should be taken per day, and the dosage should be reduced in cases of stomach upset or **diarrhea**.

As triphala is not addictive, it can be taken over long periods of time. It is recommended that every ten weeks, users should stop taking the herbal compound for two to three weeks, to give the body a rest and to maintain the effectiveness of the remedy.

When used as an eyewash, one teaspoon of triphala powder can be added to one cup of boiled and cooled water. The solids should be removed by straining through a dense cloth. The eyewash can be applied to the eyes three times per day. For topical application to the skin, the powder can be mixed with a small amount of water to make an easily applied paste.

Precautions

Triphala is not recommended during **pregnancy** or nursing, and should not be used with cases of diarrhea and dysentery.

Side Effects

The use of triphala may increase intestinal gas at first, a possible by-product of the cleansing and **detoxification** effects in the digestive tract. Loose stools or diarrhea may indicate too high a dosage, and the amount ingested should be reduced.

Interactions

There are no known interactions with this herbal compound.

Resources

BOOKS

Frawley, Dr. David and Dr. Vasant Lad. *The Yoga of Herbs: An Ayurvedic Guide to Herbal Medicine*. Lotus Press, 2001.
Morrison, Judith. *The Book of Ayurveda*. Fireside Books, 1995.
Tierra, Michael. *The Way of Herbs*. Pocket Books, 1998.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Tiwari, Maya. *Ayurvedic Secrets of Healing*. Lotus Press, 1995.

ORGANIZATIONS

The Ayurvedic Institute. 11311 Menaul NE, Albuquerque, New Mexico 87112. (505)291-9698. http://www.Ayurveda.com.

Douglas Dupler

TSS *see* **Toxic shock syndrome**

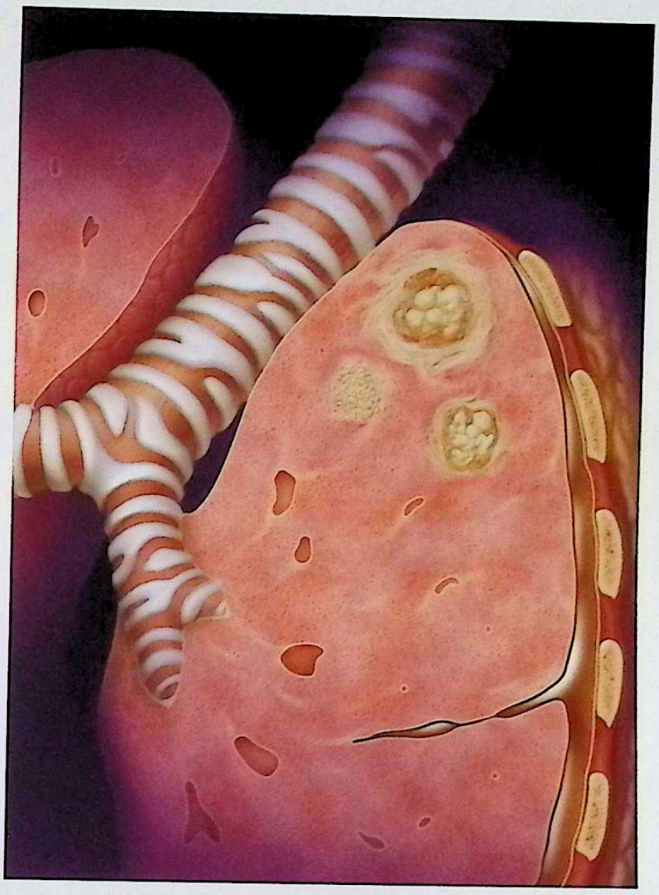
Tuberculosis

Definition

Tuberculosis (TB) is a contagious and potentially fatal disease that can affect almost any part of the body but manifests mainly as an infection of the lungs. It is caused by a bacterial microorganism, the tubercle bacillus or *Mycobacterium tuberculosis*. TB infection can either be acute and short-lived or chronic and long-term.

Description

Although TB can be prevented, treated, and cured with proper treatment and medications, scientists have never been able to eliminate it entirely. The organism that causes tuberculosis, popularly known as consumption, was discovered in 1882. Because antibiotics were unknown, the only means of controlling the spread of infection was to isolate patients in private sanatoriums or hospitals limited to patients with TB—a practice that continues to this day in many countries. TB spread very quickly and was a leading cause of death in Europe. At the turn of the twentieth century more than 80% of the people in the United States were infected before age 20, and tuberculosis was the single most common cause of death. Streptomycin was developed in the early 1940s and was the first antibiotic effective against the disease. The number of cases declined until the mid- to late-1980s, when overcrowding, homelessness, immigration, decline in public health, decline in funding, and the **AIDS** epidemic caused a slight resurgence of the disease. The increase in TB in the United States peaked in 1992, and now cases reported in the United States continue to decrease. Yet the number of cases in foreign-born individuals is rising, and the number of deaths from TB has been rising, making TB a leading cause of death from infection throughout the world. It is estimated that in the next 10 years 90 million new cases of TB will be reported, with the result of 30 million deaths, or about 3 million deaths per year.



Tuberculosis lesion in the lung. *(Brian Evans / Photo Researchers, Inc.)*

Several demographic groups are at a higher risk of contracting tuberculosis. Tuberculosis is more common in elderly persons. More than one-fourth of the nearly 23,000 cases of TB in the United States in 1995 were reported in people above age 65. TB also is more common in populations where people live under conditions that promote infection, such as homelessness and injection drug use. In the late 1990s, two-thirds of all cases of TB in the United States affected African Americans, Hispanics, Asians, and persons from the Pacific Islands. Finally, the high risk of TB includes people who have a depressed immune system. High-risk groups include alcoholics, people suffering from malnutrition, diabetics, and AIDS patients — and those infected by human immunodeficiency virus (HIV) — who have not yet developed clinical signs of AIDS. TB is the number one killer of women of child-bearing age worldwide and in poor countries, women with TB often don't know they have the disease until symptoms become severe.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Lymph node enlarge by tuberculosis. *(© Medical-on-Line / Alamy)*

TB is a major health problem in certain immigrant communities, such as the Vietnamese in southern California. One team of public health experts in North Carolina maintains that treatment for tuberculosis is the most pressing health care need of recent immigrants to the United States. In some cases, the vulnerability of immigrants to tuberculosis is increased by occupational exposure, as a recent outbreak of TB among Mexican poultry farm workers in Delaware indicates. Other public health experts are recommending tuberculosis screening at the primary care level of all new immigrants and refugees.

Causes and symptoms

Transmission

Tuberculosis spreads by droplet infection, in which a person breathes in the bacilli released into the air when a TB patient exhales, coughs, or sneezes. However, TB is not considered highly contagious compared to other infectious diseases. Only about one in three people who have close contact with a TB patient, and fewer than 15% of more remote contacts are likely to become infected. Unlike many other **infections**, TB is not passed on by contact with a patient's clothing, bed linens, or dishes and cooking utensils. Yet if a woman is pregnant, her fetus may contract TB through blood or by inhaling or swallowing the bacilli present in the amniotic fluid.

Once inhaled, water in the droplets evaporates and the tubercle bacilli may reach the small breathing sacs in the lungs (the alveoli), then spread through the lymph vessels to nearby lymph nodes. Sometimes the bacilli move through blood vessels to distant organs. At this point they may either remain alive but inactive (quiescent), or they may cause active disease. The likelihood of acquiring the disease increases with the concentration of bacilli in the air, and the seriousness of the disease is determined by the amount of bacteria with which a patient is infected.

Ninety percent of patients who harbor *M. tuberculosis* do not develop symptoms or physical evidence of the disease, and their x rays remain negative. They are not contagious; however, these individuals may get sick at a later date and then pass on TB to others.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Bacillus Calmette-Guérin (BCG)—A vaccine made from a damaged bacillus similar to the tubercle bacillus, which may help prevent serious pulmonary TB and its complications.

Miliary tuberculosis—A form of TB in which the bacillus spreads through all body tissues and organs, producing many thousands of tiny tubercular lesions. Miliary TB is often fatal unless promptly treated.

Mycobacteria—A group of bacteria that includes *Mycobacterium tuberculosis*, the bacterium that causes tuberculosis, and other forms that cause related illnesses.

Pneumothorax—Air inside the chest cavity, which may cause the lung to collapse. Pneumothorax is both a complication of pulmonary tuberculosis and a means of treatment designed to allow an infected lung to rest and heal.

Purified protein derivative (PPD)—An extract of tubercle bacilli that is injected into the skin to find out whether a person presently has or has ever had tuberculosis.

Sputum—Secretions produced in a patient's infected lung and coughed up. Sputum is routinely used as a specimen for culturing the tubercle bacillus in the laboratory.

Though it is impossible to predict whether a person's disease will become active, researchers surmise that more than 90% of cases of active tuberculosis come from this pool of people. An estimated 5% of infected persons get sick within 12-24 months of being infected. Another 5% heal initially but, after years or decades, develop active tuberculosis. This form of the disease is called reactivation TB, or post-primary disease. On rare occasions a previously infected person gets sick again after a second exposure to the tubercle bacillus.

Pulmonary tuberculosis

Pulmonary tuberculosis is TB that affects the lungs, and represents about 85% of new cases diagnosed. It usually presents with a **cough**, which may or may not produce sputum. In time, more sputum is produced that is streaked with blood. The cough may be present for weeks or months, and may be accompanied by chest **pain** and shortness of breath. Persons with pulmonary TB often run a low grade **fever** and suffer from night-sweats. The patient often loses interest in food and may lose weight. If the infection allows air to escape from the lungs into the chest cavity (pneumothorax) or if fluid collects in the pleural space (pleural effusion), the patient may have difficulty breathing. The TB bacilli may travel from the lungs to lymph nodes in the sides and back of the neck. Infection in these areas can break through the skin and discharge pus.

Extrapulmonary tuberculosis

Although the lungs are the major site of damage caused by tuberculosis, many other organs and tissues in the body may be affected. Abut 15% of newly diagnosed cases of TB are extrapulmonary, with a higher proportion of these being HIV-infected persons. The usual progression of the disease is to begin in the lungs and spread to locations outside the lungs (extrapulmonary sites). In some cases, however, the first sign of disease appears outside the lungs. The many tissues or organs that tuberculosis may affect include:

- Bones. TB is particularly likely to attack the spine and the ends of the long bones.
- Kidneys. Along with the bones, the kidneys are probably the most common site of extrapulmonary TB. There may, however, be few symptoms even though part of a kidney is destroyed.
- Female reproductive organs. The ovaries in women may be infected; TB can spread from them to the peritoneum, which is the membrane lining the abdominal cavity.
- Abdominal cavity. Tuberculous peritonitis may cause pain ranging from the mild discomfort of stomach cramps to intense pain that may mimic the symptoms of appendicitis.
- Joints. Tubercular infection of joints causes a form of arthritis that most often affects the hips and knees.
- Meninges. The meninges are tissues that cover the brain and the spinal cord. Infection of the meninges by the TB bacillus causes tuberculous meningitis, a condition that is most common in young children and the elderly. It is extremely dangerous. Patients develop headaches, become drowsy, and eventually comatose. Permanent brain damage can result without prompt treatment.
- Skin, intestines, adrenal glands, and blood vessels. All these parts of the body can be infected by *M. tuberculosis*. Infection of the wall of the body's main artery (the aorta), can cause it to rupture with catastrophic results. Tuberculous pericarditis occurs when the membrane surrounding the heart (the pericardium) is infected and fills up with fluid that interferes with the heart's ability to pump blood.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

- Miliary tuberculosis. Miliary TB is a life-threatening condition that occurs when large numbers of tubercle bacilli spread throughout the body. Huge numbers of tiny tubercular lesions develop that cause marked weakness and weight loss, severe anemia, and gradual wasting of the body.

Diagnosis

TB is diagnosed through laboratory test results. The standard test for tuberculosis infection, the tuberculin skin test, detects the presence of infection, not of active TB. Skin testing has been done for more than 100 years. In this process, Tuberculin is an extract prepared from cultures of *M. tuberculosis*. It contains substances belonging to the bacillus (antigens) to which an infected person has been sensitized. When tuberculin is injected into the skin of an infected person, the area around the injection becomes hard, swollen, and red within one to three days.

Today skin tests utilize a substance called purified protein derivative (PPD) that has a standard chemical composition and is therefore a good measure of the presence of tubercular infection. The PPD test, also called the Mantoux test, is not always 100% accurate; it can produce false positive as well as false negative results. The test may indicate that some people who have a skin reaction are not infected (false positive) and that some who do not react are in fact infected (false negative). The PPD test is, however, useful as a screener and can be used on people who have had a suspicious chest x ray, on those who have had close contact with a TB patient and persons who come from a country where TB is common.

Because of the multiple and varied symptoms of TB, diagnosis on the basis of external symptoms is not always possible. TB is often discovered by an abnormal chest x ray or other test result rather than by a claim of physical discomfort by the patient. After an irregular x ray, a PPD test is always done to show whether the patient has been infected. To verify the test results, the physician obtains a sample of sputum or a tissue sample (biopsy) for culture. In cases where other areas of the body might be infected, such as the kidney or the brain, body fluids other than sputum (urine or spinal fluid, for example) can be used for culture.

One important new advance in the diagnosis of TB is the use of molecular techniques to speed the diagnostic process as well as improve its accuracy. Four molecular techniques are increasingly used in laboratories around the world. They include polymerase chain reaction to detect mycobacterial DNA in patient specimens; nucleic acid probes to identify mycobacteria in culture; restriction fragment length polymorphism analysis to compare different strains of TB for epidemiological studies; and genetic-based susceptibility testing to identify drug-resistant strains of mycobacteria.

Treatment

Because of the nature of tuberculosis, the disease should never be treated by alternative methods alone. Alternative treatments can help support healing, but treatment of TB must include drugs and will require the care of a physician. Any alternative treatments should be discussed with a medical practitioner before they are applied.

Supportive treatments include:

- Diet. Nutritionists recommend a whole food diet including raw foods, fluids, and particularly pears and pear products (pear juice, pear sauce), since pears may help heal the lungs. Other helpful foods include fenugreek, alfalfa sprouts, garlic, pomegranate, and yogurt or kefir. Four tablespoons of pureed steamed asparagus at breakfast and dinner taken for a few months may also be helpful.
- Nutritional therapy. Nutritionists may recommend one or many of the following vitamins and minerals: vitamin A at 300,000 IU for the first three days, 200,000 IU for the next two days, then 50,000 IU for several weeks; beta-carotene at 25,000-50,000 IU; vitamin E at up to 1,000 IU daily unless the patient is a premenopausal woman with premenstrual symptoms; lipotrophic formula (one daily); deglycerolized licorice; citrus seed extract; vitamin C; lung glandular; essential fatty acids; vitamin B complex; multiminerals; and zinc.
- Herb therapy may use the tinctures of echinacea, elecampane and mullein taken three times per day, along with three garlic capsules three times per day.
- Hydrotherapy may be used up to five times weekly. Dr. Benedict Lust, the founder of naturopathy, supposedly cured himself of tuberculosis by using hydrotherapy.
- Juice therapy. Raw potato juice, may be taken three times daily with equal parts of carrot juice plus one teaspoon of olive or almond oil, one teaspoon of honey, beaten until it foams. Before using the potato juice, starch should be allowed to settle from the juice.
- Topical treatment may use eucalyptus oil packs, grape packs or grain alcohol packs.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Professional practitioners may also treat tuberculosis using **cell therapy**, magnetic field therapy or **traditional Chinese medicine**. **Fasting** may be undertaken, but only with a doctor's supervision.

Allopathic treatment

Drug therapy

Five drugs are most commonly used today to treat tuberculosis: isoniazid, rifampin, pyrazinamide, streptomycin, and ethambutol. Of the five medications, INH is the most frequently used drug for both treatment and prevention. The first three drugs may be given in the same capsule to minimize and treat active TB the number of pills in the dosage. Many patients are given INH and rifampin together for six months, with pyrazinamide added for the first two months. Hospitalization is rarely necessary because many patients are no longer infectious after about two weeks of combination treatment. A physician must monitor side effects and conduct monthly sputum tests. In 2002, The Centers for Disease Control (CDC) worked with medical organizations to release new guidelines that better individualize the drug regimens received by TB patients depending on their disease symptoms and severity. Many can now receive once-weekly doses of rifapentine in the continuation phase of treatment.

The first large scale trial of a new agent to treat TB began in 2002. The promising new drug, called moxifloxacin, may mean a shorter treatment course for TB sufferers in the near future. It will also be tested in combination with rifapentine, and researchers believe that using the drugs together will mean a less frequent dosing schedule for patients.

Drug resistance has become a problem in treating TB. When patients do not take medication properly or for long enough periods of time, the TB organisms may become drug resistant. This makes the patient vulnerable to further infection and allows the TB organism to develop resistance.

Surgery

Surgical treatment of TB may be used if medications are ineffective. There are three surgical treatments for pulmonary TB: pneumothorax, in which air is introduced into the chest to collapse the lung; thoracoplasty, in which one or more ribs are removed; and removal of a diseased lung, in whole or in part. It is possible for patients to survive with one healthy lung.

Expected results

The prognosis for recovery from TB is good for most patients, if the disease is diagnosed early and given prompt treatment with appropriate medications on a long-term regimen. According to a 2002 Johns Hopkins study, most patients in the United States who die of TB are older—average age 62— and suffer from such underlying diseases as diabetes and kidney failure.

Modern surgical methods are usually effective when necessary. Miliary tuberculosis is still fatal in many cases but is rarely seen today in developed countries. Even in cases in which the bacillus proves resistant to all of the commonly used medications, other seldom-used drugs may be tried because the tubercle bacilli have not yet developed resistance to them.

Prevention

Vaccination is widely used as a prevention measure for TB. A vaccine called BCG (Bacillus Calmette-Guérin, named after its French developers) is made from a weakened mycobacterium that infects cattle. Vaccination with BCG does not prevent infection, but it does strengthen the immune system of first-time TB patients. As a result, serious complications are less likely to develop. BCG is used more widely in developing countries than in the United States. Though the vaccine has been proven beneficial and fairly safe, its use is still controversial. It is not clear whether the vaccine's effectiveness depends on the population in which it is used or on variations in its formulation. Recently, efforts have been focused on developing a new vaccine.

Generally, prevention focuses on the prevention of transmission, skin testing high-risk persons and providing preventive drug therapy to people at risk. Measures such as avoidance of overcrowded and unsanitary conditions are necessary aspects of prevention. Hospital emergency rooms and similar locations can be treated with ultraviolet light which has an antibacterial effect.

INH is also given to prevent TB, and decreases the incidence of TB by about 60% over the life of the patient. INH is effective when taken daily for 6 to 12 months by people in high-risk categories who are under 35 years of age. About 1% of patients in preventive treatment develop toxicity. Because INH carries the risk of side effects (liver inflammation, nerve damage, changes in mood and behavior), it is important for its use to be monitored and to give it only to persons at special risk.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Unfortunately, failure of TB patients to complete the full course of their drugs adds to TB incidence and encourages development of drug-resistant strains of the disease. As scientists try to develop drugs that require shorter courses, physicians must work with patients to encourage compliance with their treatments. Even if symptoms go away, patients often have to continue their drug treatment for six months to be sure to stop the spread of their TB infection to others.

Resources

BOOKS

Burton-Goldberg Group. *Alternative Medicine: The Definitive Guide*. Puyallup, WA: Future Medicine Publishing, Inc., 1994.

"Infectious Diseases Caused by Mycobacteria." Section 13, Chapter 157 in *The Merck Manual of Diagnosis and Therapy*, edited by Mark H. Beers, MD, and Robert Berkow, MD. Whitehouse Station, NJ: Merck Research Laboratories, 2001.

Merck Manual of Medical Information: Home Edition. Edited by Robert Berkow, et al. Whitehouse Station, NJ: Merck Research Laboratories, 1997.

Pelletier, Kenneth R., MD. *The Best Alternative Medicine*, Part II, "CAM Therapies for Specific Conditions: Tuberculosis." New York: Simon & Schuster, 2002.

Smolley, Lawrence A., and Debra F. Bryse. *Breathe Right Now: A Comprehensive Guide to Understanding and Treating the Most Common Breathing Disorders*. New York: W. W. Norton & Co., 1998.

PERIODICALS

"Changing Patterns of New Tuberculosis Infections." *Infectious Disease Alert* (August 15, 2002): 171–172.

"'Drug of Dreams' Preps for First Large-Scale Trail: Study to Begin this Year; Moxifloxacin to Debut Soon in Study 27." *TB Monitor* (July 2002): 73.

Efferen, Linda S. "Tuberculosis: Practical Solutions to Meet the Challenge." *Journal of Respiratory Diseases* (November 1999): 772.

Fielder, J. F., C. P. Chaulk, M. Dalvi, et al. "A High Tuberculosis Case-Fatality Rate in a Setting of Effective Tuberculosis Control: Implications for Acceptable Treatment Success Rates." *International Journal of Tuberculosis and Lung Disease* 6 (December 2002): 1114–1117.

"Guidelines Roll Out Two New Variations: Experts give Both a Thumbs Up." *TB Monitor* (August 2002): 85.

Houston, H. R., N. Harada, and T. Makinodan. "Development of a Culturally Sensitive Educational Intervention Program to Reduce the High Incidence of Tuberculosis Among Foreign-Born Vietnamese." *Ethnic Health* 7 (November 2002): 255–265.

Kim, D. Y., R. Ridzon, B. Giles, and T. Mireles. "Pseudo-Outbreak of Tuberculosis in Poultry Plant Workers, Sussex County, Delaware." *Journal of Occupational and Environmental Medicine* 44 (December 2002): 1169–1172.

Moua, M., F. A. Guerra, J. D. Moore, and R. O. Valdiserri. "Immigrant Health: Legal Tools/Legal Barriers." *Journal of Law and Medical Ethics* 30 (Fall 2002) (3 Suppl.): 189–196.

"New Drugs Sought for Top Killer of Young Women Worldwide." *Women's Health Weekly* (July 25, 2002): 20.

"Poor Patient Compliance Key to Drug Resistance in Tuberculosis." *Pulse* (July 1, 2002): 18.

Stauffer, W. M., D. Kamat, and P. F. Walker. "Screening of International Immigrants, Refugees, and Adoptees." *Primary Care* 29 (December 2002): 879–905.

Su, W. J. "Recent Advances in the Molecular Diagnosis of Tuberculosis." *Journal of Microbiology, Immunology, and Infection* 35 (December 2002): 209–214.

ORGANIZATIONS

American Lung Association. 432 Park Avenue South, New York, NY 10016. (800) LUNG-USA. www.lungusa.org.

National Heart, Lung, and Blood Institute (NHLBI). P. O. Box 30105, Bethesda, MD 20824-0105. (301) 592-8573. www.nhlbi.nih.gov.

OTHER

New York State Department of Health. Communicable Disease Fact Sheet. nyhealth@health.state.ny.us.

University of Wisconsin-Madison Health Sciences Libraries. "Pulmonary Medicine" Healthweb. http://www.biostat.wisc.edu/chslib/hw/pulmonar.

Amy Cooper
Teresa G. Odle
Rebecca J. Frey, PhD

Tui na *see* **Thai massage**

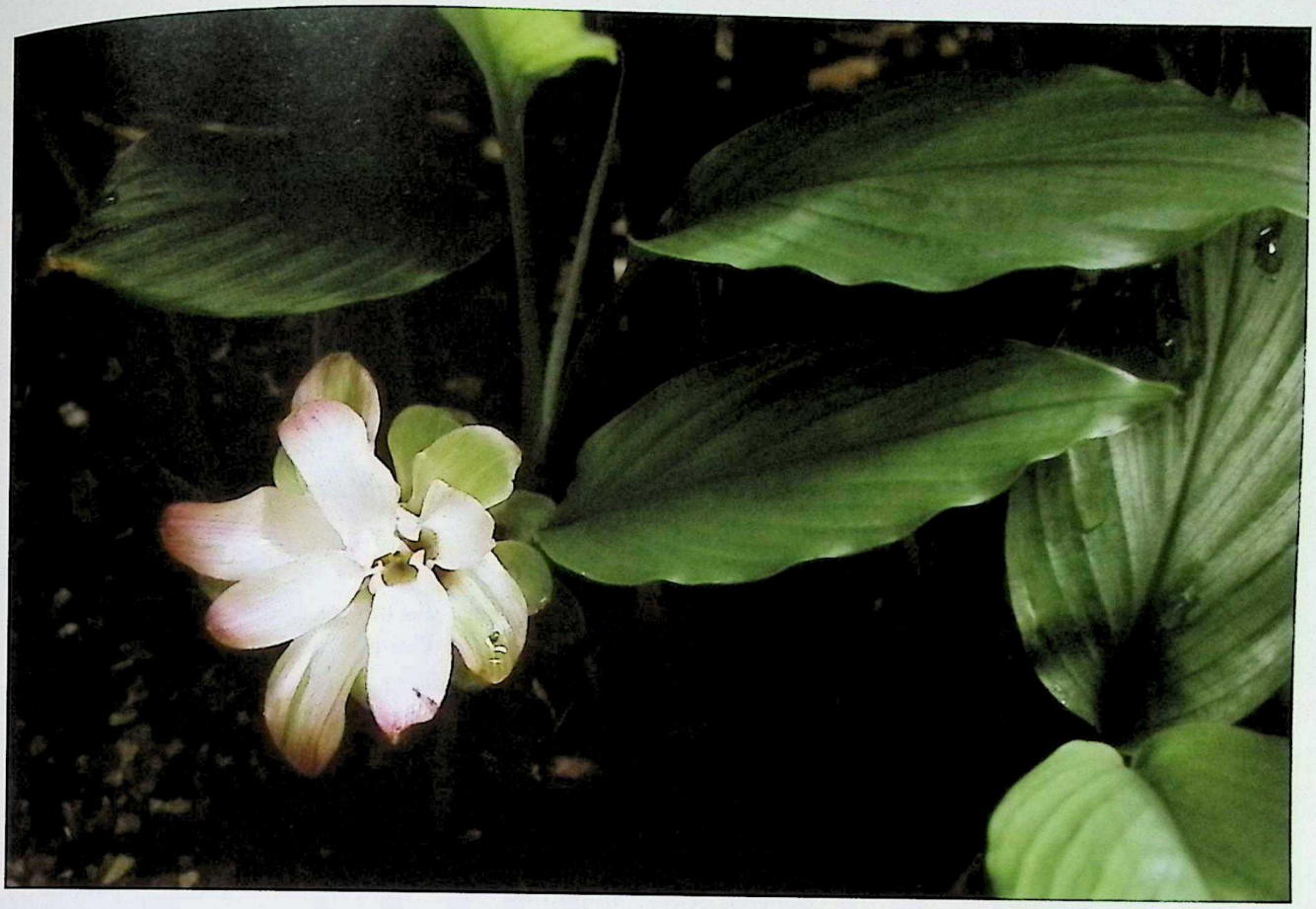
Turmeric

Description

Turmeric is a member of the *Curcuma* botanical group, which is part of the **ginger** family of herbs, the Zingiberaceae. Its botanical name is *Curcuma longa*. Turmeric is widely grown both as a kitchen spice and for its medicinal uses. Two closely related plants, *Curcuma petolata* and *Curcuma roscoeana*, are natives of Cambodia and are grown for their decorative foliage and blossoms. All curcumas are perennial plants native to southern Asia. They grow in warm, humid climates and thrive only in temperatures above 60°F (29.8°C). India, Sri Lanka, the East Indies, Fiji, and

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri



Turmeric blossom. *(©PlantaPhile, Germany. Reproduced by permission.)*

Queensland (Australia) all have climates that are conducive to growing turmeric.

The turmeric plant is identifiable by both its characteristic tuberous root and the leaves that extend upward from erect, thick stems arising from the root. Turmeric root is actually a fleshy oblong tuber 2–3 in (5–10 cm) in length, and close to 1 in (2.54 cm) wide. It is tapered at each end, and its exterior can be yellow, tan, or olive-green in color. The interior of the root is hard, firm, and either orange-brown or deeply rust-colored, with transverse resinous parallel rings. M. Grieve, in *A Modern Herbal*, states that the root is dense and breaks into a powder that is lemon yellow in color. Turmeric root has a fragrant aroma and a somewhat bitter, peppery, biting taste reminiscent of ginger. When eaten, it colors the saliva yellow and leaves a warm sensation in the mouth.

The root contains a bitter volatile oil, brown coloring matter, gum, starch, **calcium** chloride, woody fiber and a yellowish coloring material that is known as cucurmin. In addition to the root, the turmeric plant produces rhizomes, which are underground stems growing parallel to the ground that produce roots below and new shoots from their upper surface. Turmeric rhizomes have also been used for medicinal purposes. The plant's leaves are divided, lance-shaped and narrower at each end. They are close to 2 ft (61 cm), lustrous and deep green. The flowers arise from those leaves, and are a pale yellow color, growing in groupings of three to five.

General use

Powdered turmeric root is perhaps best known as a popular spice, frequntly used in Eastern cooking. It is an ingredient of curry powders, and is also used to give mustard its characteristic color. It is sometimes used as a substitute for **saffron**. The addition of turmeric to oils such as olive or **sesame oil** extends their shelf life due to its antioxidant properties. In addition, some orange and lemon drinks are now colored with turmeric, which is considered safer than artificial colorings derived from coal tar.

The powdered root of turmeric has been used for making a deep yellow dye for fabrics for hundreds of years, though it does not produce an enduring colorfast tint. It is also used as a coloring for medicines at

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Anti-fungal—A medication prescribed to treat infections caused by fungi.

Anti-inflammatory—A medication or substance that reduces the symptoms of fever and inflammation.

Apoptosis—A type of cell death in which a damaged cell shuts down and in effect commits suicide. Cucurmin induces apoptosis in some kinds of cancer cells.

Cucurmin (sometimes spelled Curcumin)—A yellow material that gives turmeric root its characteristic color.

Gram-positive bacteria—Bacteria that retain a dark violet stain when treated with an iodine-based stain known as Gram's iodine, named for a Danish bacteriologist. Common examples of gram-positive bacteria include several species of streptococci, staphylococci, and clostridia.

In vitro—A term used to describe research carried out in laboratory equipment rather than in a living organism.

Lipopolysaccharide—A complex carbohydrate with lipids (organic fats and waxes) attached to its molecule.

Rhizome—An underground stem of a plant, usually horizontal, that sends roots from its lower surface and new shoots from the upper surface.

Tuber—A thick, fleshy underground stem that produces buds that can give rise to new plants.

times. A less familiar use of turmeric is in chemistry, in the making of papers to test for alkaline solutions. White paper soaked in a tincture of turmeric turns reddish-brown and dries to a violet color when an alkaline solution is added.

Though its use in Western herbal medicine has declined over the years, turmeric has long been used and continues in use in Eastern medicine, both Oriental herbal medicine and Ayurveda, the traditional system of medicine from India. R.C. Srimal, in *Turmeric: A Brief Review of Medicinal Properties*, describes the herb as having the ability to protect the liver against toxic substances, especially such heavy metals as lead; to prevent the formation of **gallstones** or decrease the size of stones already formed; and to increase the flow of bile.

Some studies have demonstrated that turmeric exhibits anti-inflammatory properties that are useful in the treatment of both **osteoarthritis** and **rheumatoid arthritis**. Alcohol extracts of turmeric have been found to reduce blood sugar, which could eventually affect the treatment of diabetes. In addiion, clinical trials in China have demonstrated that simply using turmeric as a food seasoning can reduce serum **cholesterol**. The World Health Organization has recommended the use of this spice.

A substance known as a lipopolysaccharide isolated from the turmeric root has shown a capacity to stimulate and increase the activity of the immune system. In addition, research has shown turmeric to be effective in destroying gram-positive salmonella bacteria *in vitro*. Turmeric also demonstrates anti-fungal properties.

Turmeric has long been used as an Eastern folk remedy for eye discharges and as a cooling, soothing skin lotion. In Chinese herbal medicine, under the name of *jiang huang*, the turmeric rhizome is used in many different formulas as an anti-inflammatory **pain** reliever, especially for shoulder pain. It is believed to invigorate and improve the movement of blood and stimulate **menstruation**. The turmeric tuber, which is called *yu jin* in Chinese medicine, also has many important uses. It is given for **jaundice**, pain in the liver area, agitation, and **insomnia**.

The cucurmin found in turmeric is being studied as a possible treatment to prevent **cancer**. Cucurmin appears to lower the rate of genetic mutations in experimental animals. It has also been shown to induce apoptosis, or cell suicide, in **leukemia** cells. In addition, recent studies done on tissue samples from the human digestive tract indicate that cucurmin may help to prevent colon cancer.

Preparations

Turmeric root is cleaned, boiled, and dried in the oven before being powdered. This pulverized root can then be dissolved in either water or alcohol. It is usually dissolved in boiling alcohol and filtered to make a medicinal tincture.

In India and Pakistan, turmeric is dissolved in water for use as an eyewash, and in milk to make a soothing skin lotion.

Precautions

Practitioners of Chinese herbal medicine advise against using turmeric during **pregnancy**.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Side effects

Like other anti-inflammatory agents, turmeric has been found to contribute to the formation of stomach ulcers.

Resources

BOOKS

Grieve, M., and C. F. Leyel. *A Modern Herbal: The Medical, Culinary, Costmetic and Economic Properties, Cultivation and Folklore of Herbs, Grasses, Fungi, Shrubs and Trees With All of Their Modern Scientific Uses*. New York: Barnes and Noble Publishing, 1992.

Molony, David, and Ming Ming Pan Molony. *The American Association of Oriental Medicine's Complete Guide to Chinese Herbal Medicine*. New York: Berkley Publishing, 1999.

Phillips, Ellen, and C. Colston Burrell. *Rodale's Illustrated Encyclopedia of Perennials*. Emmaus, PA: Rodale Press, Inc., 1993.

Srimal, R. C. *Turmeric: A Brief Overview of Medicinal Properties*. Filoterapia, 1997.

PERIODICALS

Anto, R. J., A. Mukhopadhyay, K. Denning, and B. B. Aggarwal. "Curcumin (Diferuloylmethane) Induces Apoptosis Through Activation of Caspase-8, BID Cleavage and Cytochrome C Release: Its Suppression by Ectopic Expression of Bcl-2 and Bcl-xl." *Carcinogenesis 23 (January 2002): 143-150*.

Ireson, C. R., D. J. Jones, S. Orr, et al. "Metabolism of the Cancer Chemopreventive Agent Curcumin in Human and Rat Intestine." *Cancer Epidemiology and Biomarkers* 11 (January 2002): 105-111.

Shukla, Y., A. Arora, and P. Taneja. "Antimutagenic Potential of Curcumin on chromosomal aberrations in Wistar Rats." *Mutation Research* 25 (March 2002): 197-202.

Joan Schonbeck
Rebecca J. Frey, PhD

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

U

Ulcerative colitis *see* **Inflammatory bowel disease**

Ulcers, digestive

Definition

An ulcer is an eroded area of skin or mucous membrane. In common usage, however, ulcer usually refers to disorders in the upper digestive tract. The terms ulcer, gastric ulcer, and peptic ulcer are often used interchangeably. Peptic ulcers can develop in the lower part of the esophagus, the stomach, the first part of the small intestine (the duodenum), and the second part of the small intestine (the jejunum).

Description

It is estimated that 2% of the adult population in the United States has active digestive ulcers, and that about 10% will develop ulcers at some point in their lives. There are about 500,000 new cases in the United States every year, with as many as 4 million recurrences. The male/female ratio for digestive ulcers is 3:1.

The most common forms of digestive ulcer are duodenal and gastric. About 80% of all digestive ulcers are duodenal ulcers. This type of ulcer may strike people in any age group but is most common in males between the ages of 20 and 45. The incidence of duodenal ulcers has dropped over the past 30 years. Gastric ulcers account for about 16% of digestive ulcers. They are most common in males between the ages of 55 and 70. The most common cause of gastric ulcers is the use of nonsteroidal anti-inflammatory drugs, or NSAIDs. The current widespread use of NSAIDs is thought to explain why the incidence of gastric ulcers in the United States is rising.

Causes and symptoms

Causes of ulcers

There are three major causes of digestive ulcers: infection; certain medications; and disorders that cause oversecretion of stomach juices.

HELICOBACTER PYLORI INFECTION. *Helicobacter pylori* is a bacterium that lives in the mucous tissues that line the digestive tract. Infection with *H. pylori* is the most common cause of duodenal ulcers. About 95% of patients with duodenal ulcers are infected with *H. pylori*, as opposed to only 70% of patients with gastric ulcers.

USE OF NONSTEROIDAL ANTI-INFLAMMATORY DRUGS (NSAIDS). Nonsteroidal anti-inflammatory drugs, or NSAIDs, are painkillers that many people use for headaches, sore muscles, arthritis, and menstrual cramps. Many NSAIDs are available without prescriptions. Common NSAIDs include aspirin, ibuprofen (Advil, Motrin), flurbiprofen (Ansaid, Ocufen), ketoprofen (Orudis), and indomethacin (Indacin). Chronic NSAID users have 40 times the risk of developing a gastric ulcer as nonusers. Users are also three times more likely than nonusers to develop bleeding or fatal complications of ulcers. Aspirin is the most likely NSAID to cause ulcers.

OTHER RISK FACTORS.

- Hypersecretory syndromes, including Zollinger-Ellison syndrome, secrete excessive amounts of digestive juices into the digestive tract. Fewer than 5% of digestive ulcers are due to these disorders.
- Smoking increases a patient's chance of developing an ulcer, decreases the body's response to therapy, and increases the chances of dying from complications.
- Blood type. Persons with type A blood are more likely to have gastric ulcers, while those with type O are more likely to develop duodenal ulcers.
- Attitudes toward stress, rather than the presence of stress, puts one at risk for ulcers.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Endoscope view of a stomach ulcer. *(Dr. Larpent / Groupe Rech. Hepato-Gastro-Enterologie & Proctologie / Photo Researchers, Inc.)*

KEY TERMS

Bismuth—A metallic element used to make medications that soothe the stomach lining. Bismuth appears to have some antimicrobial effectiveness against *Helicobacter pylori*.

Duodenum—The first of the three segments of the small intestine that connects the stomach and the jejunum. Most peptic ulcers are in the duodenum.

Helicobacter pylori—A bacterium that causes inflammation of the stomach lining.

Laparoscope—An instrument that allows a surgeon to look into the abdominal cavity through a small incision and perform surgery on a small area.

Zollinger-Ellison syndrome—A disorder characterized by the presence of tumors (gastrinomas) that secrete a hormone (gastrin), which stimulates the production of digestive juices.

- Having a critical illness. Patients who are very sick are at increased risk of developing stress-related ulcers.

The consumption of high-fat or spicy foods is not a significant risk factor.

Symptoms

Not all digestive ulcers produce symptoms; as many as 20% of ulcer patients have so-called painless or silent ulcers. Silent ulcers occur most frequently in the elderly and in chronic NSAID users.

The symptoms of gastric ulcers include feelings of **indigestion** and **heartburn**, weight loss, and repeated episodes of gastrointestinal bleeding. Ulcer **pain** is often described as gnawing, dull, aching, or resembling hunger pangs. The patient may be nauseated and suffer loss of appetite. About 30% of patients with gastric ulcers are awakened by pain at night. Many patients have periods of chronic ulcer pain alternating with symptom-free periods that last for several weeks or months. This characteristic is called periodicity.

The symptoms of duodenal ulcers include heartburn, stomach pain relieved by eating or antacids, weight gain, and a burning sensation at the back of the throat. The patient is most likely to feel discomfort two to four hours after meals, or after having citrus juice, coffee, or aspirin. About 50% of patients with duodenal ulcers awake during the night with pain, usually between midnight and 3 A.M. A regular pattern of ulcer pain associated with certain periods of day or night or a time interval after meals is called rhythmicity.

Complications

Between 10%–20% of peptic ulcer patients develop complications at some time during the course of their illness. All of these are potentially serious conditions. Complications are not always preceded by diagnosis of or treatment for ulcers; as many as 60% of patients with complications have not had prior symptoms.

Bleeding is the most common complication of ulcers. It may result in **anemia**, **vomiting** blood, or the passage of bright red blood through the rectum. The mortality rate from ulcer hemorrhage is 6-10%.

About 5% of ulcer patients develop perforations, which are holes through which the stomach contents can leak out into the abdominal cavity. The incidence of perforation is rising because of the increased use of NSAIDs, particularly among the elderly. The signs of an ulcer perforation are severe pain, **fever**, and tenderness when the doctor touches the abdomen. Most cases of perforation require emergency surgery. The mortality rate is about 5%.

Ulcer penetration is a complication in which the ulcer erodes through the intestinal wall without digestive fluid leaking into the abdomen. Instead, the ulcer penetrates into an adjoining organ, such as the

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

pancreas or liver. The signs of penetration are more severe pain *without* rhythmicity or periodicity, and the spread of the pain to the lower back.

Obstruction of the stomach outlet occurs in about 2% of ulcer patients. It is caused by swelling or scar tissue formation that narrows the opening between the stomach and the duodenum (the pylorus). Over 90% of patients with obstruction have recurrent vomiting of partly digested or undigested food; 20% are seriously dehydrated.

Diagnosis

Physical examination and patient history

The diagnosis of peptic ulcers is rarely made on the basis of a physical examination alone. The only significant finding may be mild soreness in the area over the stomach when the doctor presses (palpates) it. The doctor is more likely to suspect an ulcer if the patient has one or more of the following risk factors:

- member of the male sex
- age over 45
- recent weight loss, bleeding, recurrent vomiting, jaundice, back pain, or anemia
- history of using aspirin or other NSAIDs
- history of heavy smoking
- family history of ulcers or stomach cancer

Endoscopy and imaging studies

An endoscopy is considered the best procedure for diagnosing ulcers and taking tissue samples. An endoscope is a slender tube-shaped instrument used to view the tissues lining the stomach and duodenum. If the ulcer is in the stomach, then a tissue sample will be taken because 3-5% of gastric ulcers are cancerous. Duodenal ulcers are rarely cancerous. Radiological studies are sometimes used instead of endoscopy because they are less expensive, more comfortable for the patient, and are 85% accurate in detecting **cancer**.

Laboratory tests

Blood tests usually give normal results in ulcer patients without complications. They are useful, however, in evaluating anemia from a bleeding ulcer or a high white cell count from perforation or penetration. Serum gastrin levels can be used to screen for Zollinger-Ellison syndrome.

It is important to test for *H. pylori* because almost all ulcer patients who are not taking NSAIDs are infected. Noninvasive tests include blood tests for immune response and a breath test. In the breath test, the patient is given an oral dose of radiolabeled urea. If *H. pylori* is present, it will react with the urea and the patient will exhale radiolabeled carbon dioxide. Invasive tests for *H. pylori* include tissue biopsies and cultures performed from fluid obtained by endoscopy.

Treatment

Alternative treatments can relieve symptoms and promote healing of ulcers. A primary goal of these treatments is to rebalance the stomach's hydrochloric acid output and to enhance the mucosal lining of the stomach.

Food **allergies** have been considered a major cause of stomach ulcers. An elimination/challenge diet can help identify the allergenic food(s) and continued elimination of these foods can assist in healing the ulcer.

Ulcer patients should avoid aspirin, stop **smoking**, avoid antacids, and reduce **stress**. Dietary changes include avoidance of sugar, **caffeine**, and alcohol, and reducing milk intake.

Supplements

Dietary supplements that help to control ulcer symptoms include:

- vitamin A
- B-complex vitamins
- vitamin C
- vitamin E
- glutamine
- rice bran oil (gamma oryzanol)
- selenium
- deglycyrrhizinated licorice (DGL)
- zinc picolinate

Herbals

Botanical medicine offers the following remedies that may help treat ulcers:

- Bilberry (*Vaccinium myrtillus*): heals ulcers.
- Cabbage: heals ulcers.
- Calendula (*Calendula officinalis*): heals duodenal ulcers.
- Chamomile tea: speeds healing, reduces mucosal reaction, reduces stress, and lessens gas.
- Comfrey (*Symphytum officinale*) root: soothes the stomach, lessens bleeding, and speeds healing, however, the patient must take caution, in that prolonged or excessive use can be harmful to the liver.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

- Geranium (*Pelargonium odoratissimum*): lessens bleeding.
- Licorice (*Glycyrrhiza glabra*): heals ulcers.
- Marshmallow (*Althaea officinalis*) root: soothes the stomach.
- Meadowsweet: soothes the stomach.
- Plantain (*Plantago major*): soothes the stomach.
- Slippery elm (*Ulmus fulva*): lessens bleeding and heals mucous membrane.
- Wheat grass (*Triticum aestivum*): heals ulcers.

Chinese medicines

Chinese herbal treatment principles are based upon specific groups of symptoms. Chinese patent medicines are also based upon specific symptoms and include:

- Wu Bei San (cuttlefish bone and fritillaria): acid reflux and bleeding
- Wu Shao San (cuttlefish bone and paeonia): acid reflux and bleeding
- Liang Fu Wan (galangal and cyperus pill): pain
- 204 Wei Tong Pian (204 epigastric pain tablet): pain, acid reflux, and bleeding
- Xi Lei San (tin-like powder): ulcer with tarry stool

Other treatments

Other treatments for ulcers are:

- Essence therapy. Dandelion essence can help reduce tension and pink yarrow essence can help the patient distinguish between his or her problems and those of others.
- Reflexology. For ulcers, work the solar plexus and stomach points on the feet and the solar plexus, stomach, and top of shoulder points on the hands.
- Biofeedback. Thermal biofeedback can help protect and heal the stomach.
- Sound therapy. Music with a slow, steady beat can promote relaxation and reduce stress.
- Ayurveda. Ayurvedic treatment is individualized to each patient but common ulcer remedies include: aloe vera natural gel, arrowroot powder with hot milk, and tea prepared from cumin, coriander, and fennel seeds.
- Acupuncture. Ulcers can be treated using target points for stress, anxiety, and stomach problems.
- Relaxation techniques. Stress reduction and involvement in stress management programs may help relieve ulcer symptoms.

Allopathic treatment

Medications

Most drugs that are used to treat ulcers work by either lowering the rate of stomach acid secretion or protecting the mucous tissues that line the digestive tract.

Medications that lower the rate of stomach acid secretions fall into two major categories: proton pump inhibitors and H_2 receptor antagonists. The proton pump inhibitors, which have been in use since the early 1990s, include omeprazole (Prilosec) and lansoprazole (Prevacid). The H_2 receptor antagonists include ranitidine (Zantac), cimetidine (Tagamet), famotidine (Pepcid), and nizatidine (Axid).

Drugs that protect the stomach tissues are sucralfate (Carafate), bismuth preparations, and misoprostol (Cytotec).

Most doctors presently recommend treatment to eliminate *H. pylori* to prevent ulcer recurrences. Without such treatment, ulcers recur at the rate of 80% per year. The drug combination used to eliminate the bacterium is tetracycline, bismuth subsalicylate (Pepto-Bismol), and metronidazole (Metizol). Eradication is not always successful, however, for reasons that are unclear.

Surgery

Surgical treatment of ulcers is generally used only for complications and suspected cancer. The introduction of a newer technique for repairing perforated ulcers using a laparoscope rather than opening the patient's abdomen may reduce some of the risks associated with surgical treatment of ulcers. The most common surgical procedures are vagotomies, in which the connections of the vagus nerve to the stomach are cut to reduce acid secretion; and antrectomies, which involve the removal of part of the stomach.

Expected results

The prognosis for recovery from ulcers is good for most patients. Very few ulcers fail to respond to the medications that are currently used to treat them. Recurrences can be cut to 5% by eradication of *H. pylori*. Most patients who develop complications recover without problems even when emergency surgery is necessary.

Prevention

Strategies for the prevention of ulcers or their recurrence include the following:

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

- giving misoprostol to patients who must take NSAIDs
- participating in integrated stress management programs
- avoiding unnecessary use of aspirin and NSAIDs
- improving the nutritional status of critically ill patients
- quitting smoking
- cutting down on alcohol, tea, coffee, and sodas containing caffeine
- eating high-fiber foods

Resources

BOOKS

Miller, David K. "Chronic Abdominal Pain." In *Current Diagnosis 9*. Edited by Rex B. Conn, et al. Philadelphia: W. B. Saunders Company, 1997.

Viggiano, Thomas R. "Peptic Ulcer Disease." In *Current Diagnosis 9*. Edited by Rex B. Conn, et al. Philadelphia: W. B. Saunders Company, 1997.

Way, Lawrence W. "Stomach and Duodenum." In *Current Surgical Diagnosis & Treatment*. Edited by Lawrence W. Way. Stamford, CT: Appleton & Lange, 1994.

Ying, Zhou Zhong, and Jin Hui De. "Gastrointestinal Diseases:" In *Clinical Manual of Chinese Herbal Medicine and Acupuncture*. New York: Churchill Livingston, 1997.

PERIODICALS

Bown, R. L. "An Overview of the Pharmacology, Efficacy, Safety and Cost-Effectiveness of Lansoprazole." *International Journal of Clinical Practice* 56 (March 2002): 132-139.

Chen, M. H., M. S. Wu, W. C. Lee, et al. "A Multiple Logistic Regression Analysis of Risk Factors in Different Subtypes of Gastric Ulcer." *Hepatogastroenterology* 49 (March-April 2002): 589-592.

Fagerstrom, K. "The Epidemiology of Smoking: Health Consequences and Benefits of Cessation" *Drugs* 62 (2002): Supplement 2: 1-9.

Flannery, J., and D. A. Tucker. "Pharmacologic Prophylaxis and Treatment of Stress Ulcers in Critically Ill Patients." *Critical Care Nursing Clinics of North America* 14 (March 2002): 39-51.

Han, K. "The Effect of an Integrated Stress Management Program on the Psychologic and Physiologic Stress Reactions of Peptic Ulcer in Korea." *Journal of Holistic Nursing* 20 (March 2002): 61-80.

Siu, W. T., H. T. Leong, B. K. Law, et al. "Laparoscopic Repair for Perforated Peptic Ulcer: A Randomized Controlled Trial." *Annals of Surgery* 235 (March 2002): 320-321.

Wermeille, J., M. Cunningham, J. P. Dederding, et al. "Failure of *Helicobacter pylori* Eradication: Is Poor Compliance the Main Cause?" *Gastroenterology and Clinical Biology* 26 (March 2002): 207-209.

ORGANIZATIONS

American College of Gastroenterology. 4900-B South Thirty-First Street, Arlington, VA 22206–1656. (703) 820–7400. *http://www.acg.cgi.gi.org/acghome/html.*

Digestive Health Initiative. 7910 Woodmont Avenue, #914, Bethesda, MD 20814. (800) 668–5237. *http://www.gastro.org./dhi.html.*

OTHER

Hoffman, David L. "Peptic Ulceration." *HealthWorld Online*. http://www.healthy.net/library/books/hoffman/digestive/ulcerati.htm.

Belinda Rowland
Rebecca J. Frey, PhD

Unani-tibbi

Definition

Unani-tibbi denotes Arabic or Islamic medicine, also known as prophetic medicine. It traditionally makes use of a variety of techniques, including diet, herbal treatments, manipulative therapies, and surgery. Unani-tibbi is a complete system, encompassing all aspects and all fields of medical care, from **nutrition** and hygiene to psychiatric treatment.

Origins

The name unani-tibbi, as literally translated from the Arabic, means Greek medicine. This name reflects the fact taht early Arab physicians took their basic knowledge from the Greeks. At the time, Greek medical knowledge was the best to be had, particularly from Galen, the renowned second-century Greek physician to the gladiators and Emperor Marcus Aurelius.

However, from that point onwards, Islamic medical scholars were responsible for many developments and advancements that, at the time, placed Arabic medicine firmly in the vanguard of medical science. There followed a steady stream of Muslim medical scholars, who not only upheld the high standards that came to be known of unani-tibbi, but carried on adding to and improving the basic pool of knowledge.

Some notable scholars of the science of unani-tibbi are listed below:

- Al Tabbari (838–870)
- Al Razi (Rhazes) (841–926)
- Al Zahrawi (930–1013)
- Avicenna (980–1037)

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

- Ibn Al Haitham (960–1040)
- Ibn Sina (Avicenna) (980–1037)
- Ibn Al Nafees (1213–1288)
- Ibn Khaldun (1332–1395)

Medical innovations introduced by unani-tibbi physicians include:

- Avicenna was the first to describe meningitis, so accurately and in such detail, that it has scarcely been added to after 1,000 years.
- Avicenna was the first to describe intubation (surgical procedure to facilitate breathing)—Western physicians began to use this method at the end of the eighteenth century.
- The use of plaster of Paris for fractures by the Arabs was standard practice; it was "rediscovered" in the West in 1852.
- Surgery was used by the Arabs to correct cataracts.
- Ibn Al Nafees discovered pulmonary blood circulation.
- A strict system of licensing for medical practitioners was introduced in Baghdad in 931, which included taking the Hippocratic oath and specific periods of training for doctors.
- There was a system of inspection of drugs and pharmaceuticals in Baghdad 1,000 years ago.
- The European system of medicine was based on the Arabic system, and even as recently as the early nineteenth century, students at the Sorbonne had to read the Cannon of Avicenna as a precondition to graduating.
- Unani-tibbi hospitals were, from the beginning, free to all without discrimination on the basis of religion, sex, ethnicity, or social status.
- Their hospitals allocated different wards for each classification of disease.
- Hospitals had unlimited water supplies and bathing facilities.
- Before the advent of the printing press, there were extensive handwritten libraries in Baghdad (80,000 volumes), Cordova (600,000 volumes), Cairo (two million volumes), and Tripoli (three million volumes).
- All Unani-tibbi hospitals kept patient records.
- A hospital was established for lepers. As many as six centuries later in Europe, they were still burning lepers to death by royal decree.
- In 830, nurses were brought from Sudan to work in the Qayrawan hospital in Tunisia.
- A system of fountain-cooled air was devised for the comfort of patients suffering from fever.
- Avicenna described the contamination of the body by "foreign bodies" prior to infection, and Ibn Khatima also described how "minute bodies" enter the body and cause disease—well in advance of Pasteur's discovery of microbes.
- Al Razi was the first to describe smallpox and measles. He was accurate to such a degree that nothing has been added since.
- Avicenna described tuberculosis as being a communicable disease.
- Avicenna devised the concept of anesthetics. The Arabs developed a "soporific sponge," (impregnated with aromatics and narcotics and held under the patient's nose), which preceded modern anesthesia.
- The Arab surgeon Al Zahrawi was the first to describe hemophilia.
- Al Zahrawi was also the first surgeon to use cotton, which is an Arabic word, as surgical dressings for the control of hemorrhage.
- Avicenna accurately described surgical treatment of cancer, saying that the excision must be radical and remove all diseased tissue, including amputation and the removal of veins running in the direction of the tumor. He also recommended cautery of the area if needed. This observation is relevant even in the early 2000s.
- Avicenna, Al Razi, and others formed a medical association for the purpose of holding conferences so that the latest developments and advancements in the field of medicine could be debated and passed on to others.

Benefits

What began as an advanced medical system that set world standards subsequently became regarded as a system of folk medicine. This decline coincided with the decline of the Islamic Empire and the dissolution of the Caliphate (spiritual head of Islam), as these were directly responsible for the direction and impetus of Islamic scientific scholars in all fields.

Unani-tibbi practitioners still treat people with herbal remedies and "manipulation," for a variety of illnesses. In the Islamic world, many poorer people who cannot afford allopathic medicine still resort to this traditional medicine. There is also an element of the society that prefers unani-tibbi to allopathic medicine as, indeed, the traditional unani-tibbi remedies do not bring with them the side effects commonly experienced with allopathic drugs.

Description

Similar to Greek humoral theory, unani-tibbi considers the whole human being, spiritual, emotional,

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

and physical. At the theory's foundation is the concept of the "four humors." These are Dum (blood), Bulghum (phlegm), Sufra (yellow bile), and Sauda (black bile). Each is further categorized as being hot and moist (blood), cold and moist (phlegm), hot and dry (yellow bile), and cold and dry (black bile). Individuals have their own unique profile of humors, which must be maintained in harmony to preserve health. If the body becomes weak and this harmony is disrupted, a physician can be called upon to help restore the balance.

This may be done using correct diet and nutrition and/or the unani-tibbi system of botanical therapy, **cupping**, bleeding, manipulation, and massage, among others, as treatments for all disease and ailments. Herbs or substances used to treat a patient will be matched to his humor type.

Unani-tibbi employs a detailed system of diagnosis, including observation of urine and stools, palpation of the body and pulse, and observation of the skin and eyes.

It also employs a system of prophylactics in order to preserve health and ward off disease, which includes the adherence to strict hygiene rules, protection of air, food, and water from contamination or pollution, sufficient rest and **exercise**, and attention to spiritual needs. Certain herbs are also taken on a prophylactic basis, such as black cumin and **sage**.

In general, unani-tibbi treatment is not expensive, and it is certainly less expensive than allopathic medicine. However, charges vary according to area and practitioner. Patients should discuss the cost of treatment with a practitioner before treatment begins.

Preparations

Remedies are often provided by the practitioner or are obtained from a specialized herbalist. The ingredients are mainly herbs and honey. It must be noted that the honey used is raw and unadulterated, rather than the type found in supermarkets, which is usually heat-treated.

A famous and widely used medicinal herb is black cumin (*Nigella sativa*), also known as Hab Al Baraka in Arabic, which means blessed seed. Black cumin has been cultivated since Assyrian times and it is beneficial for a very long list of ailments. It is widely mixed with other herbs for greater beneficial effect and is said to strengthen the immune system when taken over a period of time. Some research has suggested that it has the ability to slow the division of **cancer** cells.

Unani-tibbi uses a number of compounds that are combined into a tablet, liquid, paste, or powder. One example is qurs taifudia, used to treat typhoid **fever**. Its components are the dried blood from two rabbits, musk, **magnesium** carbonate, **arrowroot**, gelatin, paraffin (wax), ground soapstone, and damask rose water. The rabbits are killed by severing their jugular veins and their blood is collected on a plate, dried in the sun, ground to a powder, and sifted through a mesh sieve. The other ingredients are added and the mixture is formed into flat, round tablets.

Precautions

The achievements of the unani-tibbi practitioners of the early 2000s bear little resemblance to those of their illustrious predecessors, and some of those claiming to practice traditional medicine are woefully ill-equipped to practice. However, many Arab and Muslim doctors, after qualifying in allopathic medicine, continue to treat their patients with traditional remedies and take the trouble to educate themselves in this ancient art.

In India, where Islamic medicine is primarily known as unani-tibbi, the government set up a Central Council for Research in Unani Medicine (CCRUM), which also has a licensing system for these traditional practitioners.

In the Arab countries, the system of treatment is known as tibb-nabawi, or prophetic medicine, and mainly utilizes herbal remedies, honey, and other bee products.

Side effects

There are no known side effects.

Research and general acceptance

The herbal remedies employed by unani-tibbi are chosen for their non-toxicity and absence of side effects.

Although unani-tibbi has not been the subject of a great deal of research by modern-day scientists, it still enjoys enormous popularity in Muslim countries. The records left by Islamic medical scholars become more remarkable in the light of modern medicine, when their achievements and theories continue to compare admirably with allopathic medicine into the 2000s.

The CCRUM in India conducted research into aspects of unani-tibbi that are likely to be of particular benefit to modern society, for example, the substances that were originally used as safe forms of contraception, with none of the side effects of present-day chemical contraception. Still, unani-tibbi is not accepted by most

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Excision—Surgical removal of tissue.

Hemophilia—Hereditary condition passed by women to their male children whereby the blood has no ability to clot.

Intubation—Surgical procedure whereby a tube is inserted into the windpipe of a seriously ill patient to facilitate breathing.

Tibb-nabawi—Prophetic medicine (another name for unani-tibbi).

traditional Western medical practitioners, primarily because of a lack of accepted scientific studies.

Training and certification

There are two classifications of practitioners of unani-tibbi: simple folk practitioners, dispensers of herbal remedies and so on, and the highly qualified doctors and scholars who conduct research. Research is conducted at the King Abdul Azeez University in Riyadh, Saudi Arabia, and the Sultan Qaboos University in Oman, among others, into the efficacy of traditional herbal remedies.

The CCRUM in India issues licenses to unani-tibbi practitioners and provides funds for research.

Resources

BOOKS

Khan, Muhammad S. *Islamic Medicine*. London: Routledge, 2007.

Pormann, Peter E., and Emilie Savage-Smith. *Medieval Islamic Medicine*. Washington, DC: Georgetown University Press, 2007.

PERIODICALS

Tajuddin, M. Nasiruddin, and N. Ahmad. "Effect of an Unani Formulation on Lipid Profile in Rat." *Indian Journal of Pharmacology* (January/February 2006): N/A.

ORGANIZATIONS

International Institute of Islamic Medicine & The Islamic Medical Association of North America, PO Box 160, Brandon, FL, 33509, (813) 661-6161, http://www.iiim.org.

National Center for Alternative and Complementary Medicine, 9000 Rockville Pike, Bethesda, MD, 20892, (888) 644-6226, http://www.nccam.nih.gov.

Patricia Skinner
Ken R. Wells

Urinary incontinence

Definition

Urinary incontinence is unintentional loss of urine that is sufficient enough in frequency and amount to cause physical and/or emotional distress in the person experiencing it.

Description

Approximately 13 million Americans suffer from urinary incontinence. Women are affected by the disorder more frequently than are men; one in 10 women under age 65 suffers from urinary incontinence. A study published in late 2002 found that between 21% and 29% of adult women in the workforce reported at least one episode of urinary incontinence each month. Older Americans, too, are more prone to the condition. Twenty percent of Americans over age 65 are incontinent. In general, the condition is underrecognized and undertreated.

There are five major categories of urinary incontinence: overflow, **stress**, urge, functional, and reflex:

- Overflow incontinence. Overflow incontinence is caused by bladder dysfunction. Individuals with this type of incontinence have an obstruction to the bladder or urethra, or a bladder that doesn't contract properly. As a result, their bladders do not empty completely, and they have problems with frequent urine leakage.
- Stress incontinence. Stress incontinence occurs when an individual involuntarily loses urine after pressure is placed on the abdomen (i.e., during exercise, sexual activity, sneezing, coughing, laughing, or hugging).
- Urge incontinence. Urge incontinence occurs when a person feels a sudden need to urinate, and cannot control the urge to do so. As a consequence, urine is involuntarily lost before the individual can get to the toilet.
- Functional incontinence. Individuals who have control over their own urination and have a fully functioning urinary tract, but cannot make it to the bathroom in time due to a physical or cognitive disability, are functionally incontinent. These individuals may suffer from arthritis, Parkinson's disease, multiple sclerosis, or Alzheimer's disease.
- Reflex incontinence. Individuals with reflex incontinence lose control of their bladder without warning. They typically suffer from neurological impairment.

In some cases, an individual may develop short-term or *acute incontinence*. Acute incontinence may

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Types of incontinence

Type	Description
Functional	Found mainly among older populations, functional incontinence occurs when, because of a physical or mental impairment, a person is unable to make it to the toilet in time.
Gross Total	The bladder has no storage capacity, which can lead to a continuous leakage of urine, day and night, or periodic large volumes of urine and uncontrollable leaking. This can be caused by an anatomical defect, spinal cord injury, or an injury to the urinary system from surgery.
Mixed	A person suffers from more than one type of incontinence, though one is usually worse than another.
Overflow	The bladder never empties and signal to void is lost. Urine overflows in small amounts and bladder remains partially full. Common in people with a damaged or blocked urethra and in men with prostate gland problems.
Stress	Prevalent in women, stress incontinence occurs when the pelvic floor muscles are weakened and cannot support increased bladder pressure. Coughing, sneezing, exercising, and laughing can trigger urine flow.
Urge	The bladder contracts when full and urine flows. The patient has no control over the urge to void. (This type of incontinence is also commonly referred to as "overactive bladder," because it may often contract when the bladder isn't full)

(Illustration by Corey Light. Cengage Learning, Gale)

occur as a symptom or by-product of illness, as a side effect of medication, or as a result of dietary intake. The condition is typically easily resolved once the cause is determined and addressed.

Causes and symptoms

Urinary incontinence can be caused by a wide variety of physical conditions, including:

- Childbirth. Childbirth can stretch the pelvic muscles and cause the bladder to lose some support from surrounding muscles, resulting in stress incontinence.
- Dysfunction of the bladder and/or the urinary sphincter. In a continent individual, as the bladder contracts, the outlet that releases urine into the urethra (bladder sphincter) opens and urine exits the body. In individuals with overflow incontinence, bladder contractions and dilation of the sphincter do not occur at the same time.
- Enlarged prostate. In men, an enlarged prostate gland can obstruct the bladder, causing overflow incontinence.
- Hysterectomy or other gynecological surgery. Any surgery involving the urogenital tract runs the risk of damaging or weakening the pelvic muscles and causing incontinence.
- Menopause. The absence of estrogen in the postmenopausal woman can cause the bladder to drop, or prolapse.
- Neurological conditions. The nervous system sends signals to the bladder telling it when to start and stop emptying. When the nervous system is impaired, incontinence may result. Neurological conditions such as multiple sclerosis, stroke, spinal cord injuries, or a brain tumor may cause the bladder to contract involuntarily, expelling urine without warning, or to cease contractions completely, causing urinary retention.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Bladder neck—The place where the urethra and bladder join.

Bladder sphincter—The outlet that releases urine into the urethra.

Calculi (singular, calculus)—Mineral deposits that can form a blockage in the urinary system.

Occlusive—Closing off. One of the newest treatments for stress urinary incontinence in women is an external occlusive single-use cap that covers the urethral opening.

Perineal area—The genital area between the vulva and anus in a woman, and between the scrotum and anus in a man.

Sacral nerves—The five pairs of nerves that arise from the lowermost segments of the spinal cord and control bladder, bowel, and pelvic functions. Stimulation of the sacral nerves by an implanted device is a newer treatment for urinary incontinence.

- Obesity. Persons who are overweight have undue pressure placed on their bladder and surrounding muscles.
- Obstruction. A blockage at the bladder outlet may permit only small amounts of urine to pass, resulting in urine retention and subsequent overflow incontinence. Tumors, calculi, and scar tissue can all block the flow of urine. A urethral stricture, or narrow urethra caused by scarring or inflammation, may also result in urine retention.

Acute incontinence is a temporary condition caused by a number of factors, including:

- Bladder irritants. Substances in the urine that irritate the bladder may cause the bladder muscle to malfunction. The presence of a urinary tract infection and the ingestion of excess caffeine can act as irritants. Highly concentrated urine resulting from low fluid intake may also irritate the bladder.
- Constipation. Constipation can cause incontinence in some individuals. Stool that isn't passed presses against the bladder and urethra, triggering urine leakage.
- Illness or disease. Diabetes can greatly increase urine volume, making some individuals prone to incontinence. Other illnesses may temporarily impair the ability to recognize and control the urge to urinate, or to reach the toilet in time to do so.
- Medications and alcohol. Medications that sedate, such as tranquilizers and sleeping pills, can interfere with the proper functioning of the urethral nerves and bladder. Both sedatives and alcohol can also impair an individual's ability to recognize the need to urinate, and act on that need in a timely manner. Other medications such as diuretics, muscle relaxants, and blood pressure medication can also affect bladder function.
- Surgery. Men who undergo prostate surgery can suffer from temporary stress incontinence as a result of damage to the urethral outlet.

Diagnosis

Urinary incontinence may be diagnosed by a general practitioner, urologist, or gynecologist. If the patient is over age 65, a geriatrician may diagnose and treat the condition. A thorough medical history and physical examination is typically performed, along with specific diagnostic testing to determine the cause of the incontinence. Diagnostic testing may include x rays, ultrasound, urine tests, and a physical examination of the pelvis. It may also include a series of exams that measure bladder pressure and capacity and the urinary flow (urodynamic testing). The patient may also be asked to keep a diary to record urine output, frequency, and any episodes of incontinence over a period of several days or a week.

Treatment

Adjusting dietary habits and avoiding acidic and spicy foods, alcohol, **caffeine**, and other bladder irritants can help to prevent urinary leaking. Eat recommended amounts of whole grains, fruits, and vegetables to avoid **constipation**. Bladder training, used to treat urge incontinence, can also be a useful treatment tool. The technique involves placing a patient on a toileting schedule. The time interval between urination is then gradually increased until an acceptable time period between bathroom breaks is consistently achieved.

Therapies designed to strengthen the pelvic muscles are also recommended for the treatment of urinary incontinence. Pelvic toning exercises, known as Kegel or PC muscle exercises, can alleviate stress incontinence in both men and women. These exercises involve repeatedly tightening the muscles of the pelvic floor.

Biofeedback techniques can teach incontinent patients to control the urge to urinate. Biofeedback uses sensors to monitor temperature and muscle contractions in the vagina to help incontinent patients learn to increase their control over the pelvic muscles.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

An infusion, or tea, of **horsetail** (*Equisetum arvense*), agrimony (*Agrimonia eupatoria*), and sweet sumach (*Rhus aromatica*) may be prescribed by an herbalist or naturopath to treat stress and urge incontinence. These herbs are natural astringents, and encourage toning of the digestive and urinary tracts. Other herbs, such as urtica, or stinging **nettle** (*Urtica urens*), **plantain** (*Plantago major*), or maize (*Zea mays*) may be helpful. Homeopathic remedies may include **pulsatilla** and causticum. Chinese herbalists might recommend golden lock tea, a mixture of several herbs that helps the body retain fluids.

Allopathic treatment

There are numerous invasive and noninvasive treatment options for urinary incontinence:

- Behavior modification therapy. Behavior modification is a psychological approach to the treatment of urinary incontinence in which patients gradually increase the length of the time interval between voidings and "retrain" the bladder in other ways. It is reported to be highly effective in treating urge incontinence.
- Collagen injections. Collagen injected in the tissue surrounding the urethra can provide urethral support for women suffering from stress incontinence.
- External occlusive devices. A new single-use disposable urethral cap is available without a prescription for women suffering from stress urinary incontinence. The cap is noninvasive and appears to be quite effective in managing incontinence.
- Inflatable urethral insert. Sold under the tradename Reliance, this disposable incontinence balloon for women is inserted into the urethra and inflated to prevent urine leakage.
- Intermittent urinary catheterization. The periodic insertion of a catheter into a patient's bladder to drain urine from the bladder into an attached bag or container.
- Medication. Estrogen hormone replacement therapy can help improve pelvic muscle tone in postmenopausal women. Other medications, including flurbiprofen, capsaicin and botulinum toxin, are sometimes prescribed to relax the bladder muscles or to tighten the urethral sphincter. Newer medications for the treatment of urinary incontinence are undergoing clinical trials. One of these drugs, duloxetine, differs from present medications in targeting the central nervous system's control of the urge to urinate rather than the smooth muscle of the bladder itself.
- Perineal stimulation. Perineal stimulation is used to treat stress incontinence. The treatment uses a probe to deliver a painless electrical current to the perineal area muscles. The current tones the muscle by contracting it.
- Permanent catheterization. A permanent, or indwelling, catheter may be prescribed for chronic incontinence that doesn't respond to other treatments.
- Sacral nerve stimulation (SNS). Also known as sacral neuromodulation, SNS is a procedure in which a surgeon implants a device that sends continuous stimulation to the sacral nerves that control the urinary sphincter. The FDA approved sacral nerve stimulation for the treatment of urinary urge incontinence in 1997 and for urinary frequency in 1999.
- Surgery. Bladder neck suspension surgery is used to correct female urinary stress incontinence. Bladder enlargement surgery may be recommended to treat incontinent men and women with unusually small bladders.
- Urinary sphincter implant. An artificial urinary sphincter may be used to treat incontinence in men and women with urinary sphincter impairment.
- Vaginal inserts. Devices constructed of silicone or other pliable materials that can be inserted into a woman's vagina to support the urethra.

Expected results

Left untreated, incontinence can cause physical and emotional upheaval. Individuals with long-term incontinence suffer from urinary tract **infections**, and skin **rashes** and sores. Incontinence can also affect their self-esteem and cause **depression** and social withdrawal. They frequently stop participating in physical activities they once enjoyed because of the risk of embarrassing "accidents." However, with the wide variety of treatment options for incontinence available today, the prognosis for incontinent patients is promising. If incontinence cannot be stopped, it can be improved in the majority of cases.

Prevention

Women who are pregnant or who have gone through **childbirth** can reduce their risk for stress incontinence by strengthening their perineal area muscles with **Kegel exercises**. Men who have undergone prostate surgery may also benefit from pelvic muscle exercises. Men and women should consult with their doctor before initiating any type of **exercise** program.

Resources

BOOKS

Blaivas, Jerry. *Conquering Bladder and Prostate Problems: The Authoritative Guide for Men and Women*. New York, NY: Plenum, 1998.

"Urinary Incontinence." Section 17, Chapter 215 in *The Merck Manual of Diagnosis and Therapy*, edited by

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Mark H. Beers, MD, and Robert Berkow, MD. Whitehouse Station, NJ: Merck Research Laboratories, 1999.

PERIODICALS

Amundsen, C. L., and G. D. Webster. "Sacral Neuromodulation in an Older, Urge-Incontinent Population." *American Journal of Obstetrics and Gynecology* 187 (December 2002): 1462–1465.

Bachmann, G., and B. Wiita. "External Occlusive Devices for Management of Female Urinary Incontinence." *Journal of Women's Health (Larchmont)* 11 (November 2002): 793–800.

Burgio, K. L. "Influence of Behavior Modification on Overactive Bladder." *Urology* 60 (November 2002): (5 Suppl. 1): 72–76.

Burgio, K. L., P. S. Goode, J. L. Locher, et al. "Behavioral Training With and Without Biofeedback in the Treatment of Urge Incontinence in Older Women: A Randomized Controlled Trial." *Journal of the American Medical Association* 288 (November 13, 2002): 2293–2299.

Haeusler, G., H. Leitich, M. van Trotsenburg, et al. "Drug Therapy of Urinary Urge Incontinence: A Systematic Review." *Obstetrics and Gynecology* 100 (November 2002) (5 Pt 1): 1003–1016.

Palmer, M. H., and S. Fitzgerald. "Urinary Incontinence in Working Women: A Comparison Study." *Journal of Women's Health (Larchmont)* 11 (December 2002): 879–888.

Sandroff, Ronni. "Urgent Matters: Incontinence is Treatable, If Only Women Would Talk About It." *American Health for Women* 16, no. 8 (Oct 1997): 28–30.

Viktrup, L. "Female Stress and Urge Incontinence in Family Practice: Insight Into the Lower Urinary Tract." *International Journal of Clinical Practice* 56 (November 2002): 694–700.

Yoshimura, N., and M. B. Chancellor. "Current and Future Pharmacological Treatment for Overactive Bladder." *Journal of Urology* 168 (November 2002): 1897–1913.

ORGANIZATIONS

American Foundation for Urologic Disease. 1128 North Charles Street, Baltimore, MD 21201. (800) 242-2383. *http://www.afud.org/*.

American Urological Association (AUA). 1120 North Charles Street, Baltimore, MD 21201. (410) 727-1100. *www.auanet.org*.

Center for Biologics Evaluation and Research (CBER), U. S. Food and Drug Administration (FDA). 1401 Rockville Pike, Rockville, MD 20852-1448. (800) 835-4709 or (301) 827-1800. *www.fda.gov/cber*.

National Association for Continence. 2650 East Main Street, Spartanburg, SC 29307. (800) 252-3337. *http://www.nafc.org*.

National Kidney and Urologic Diseases Information Clearinghouse. 3 Information Way, Bethesda, MD 20892-3580. (800) 891-5390.

Paula Ford-Martin
Rebecca J. Frey, PhD

Urinary tract infection *see* **Bladder infection**

Urine therapy

Definition

Urine Therapy is the use of one's urine, internally or externally, to heal **wounds** or alleviate disease symptoms and/or for overall well-being. It is also called uropathy, auto-urine therapy, amaroli, or shivambu.

Origins

References to the use of urine for medicinal purposes can be traced to ancient Egyptian, Chinese, Aztec, and Hindu histories. Proponents also point to Proverbs 5:15 in the Old Testament of the Bible: "Drink water from thy own cistern, and the streams of thy own well."

As an integral part of the ayurvedic tradition of **yoga**, it is known as amaroli. Ayurvedic yogis are encouraged to drink their own urine between 4 and 6 ***a.m.*** in the morning in the belief that the hormones ingested will facilitate a meditative state.

The rationale of the therapy is that urine is a by-product of blood filtration, not excess water from consumed food and liquid. In fact, the medical term for urine is plasma ultra filtrate. Blood filled with nutrients passes through the liver where toxins are filtered out and excreted as solid waste matter. This purified blood then travels to the kidneys where any excess elements form urine and are then eliminated from the body. As urine passes through the urethra, it is a sterile solution. Ninety-five percent of it is water; the remaining five percent is a combination of urea, vitamins, minerals, enzymes, hormones, proteins, and antibodies. Urine therapy advocates argue that the

Dried chicory leaves can be used to promote the production of bile, release gallstones and aid the elimination of excessive internal mucus. *(Bildagentur-online / TH Foto-Werbung/Photo Researchers, Inc.)*

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Blood pressure—The force applied to the walls of the arteries as the heart pumps blood through the body.

Placebo—A medication prescribed more for the mental relief of the patient than for its actual effect on the individual's disorder.

Placebo effect—Improvement in a illness or symptom that occurs in response to treatment but cannot be credited to the specific treatment used.

Urea—A colorless compound that is the primary component of urine in mammals and that results from the oxidation of proteins.

Urethra—The canal carrying urine from the bladder

presence of these nutrients are proof of urine's medicinal powers.

Urea is an antibacterial, antifungal, and antiviral agent that forms when the body balances its ratio of **sodium** chloride to water. Urea is often used to create ointments and lotions for its properties of reducing inflammation and ability to kill bacteria. It can be duplicated under laboratory conditions by dissolving **calcium** cyanamid in water, and then heated under high pressure to produce a compound of urea and calcium hydroxide.

Benefits

Urine therapy has been touted as a remedy for a long list of ailments, including **multiple sclerosis**, **colitis**, lupus, **rheumatoid arthritis**, **cancer**, **hepatitis**, hyperactivity, **psoriasis**, **eczema**, diabetes, herpes, **mononucleosis**, and adrenal failure. It is a commonly used treatment for snakebites and bee and jellyfish **stings**. Childhood illnesses such as acute flu, colds, viral **infections**, **mumps**, chicken pox, and **allergies** have also said to be alleviated by urine therapy. Urine is an ingredient in Pergonal, a fertility drug, and in pharmaceuticals used to dissolve **blood clots**.

Description

Urine therapy can be applied internally or externally. For internal use, a sample of the morning's first urine is collected a sterile container. Using a clean medicine dropper, an amount between one to ten drops is placed under the tongue. Usually, one to five drops are applied on the first day; 5-10 drops on the second day; 5-10 drops on the morning of the third day followed by 5-10 drops that evening.

In homeopathic urine therapy, drops of urine are diluted in quantities of distilled water. Drops of the dilution are placed under the tongue hourly until a noticeable improvement in illness or the temporary worsening of the condition occurs. Then drops are applied at lengthening intervals for three days.

When taking orally, only fresh urine should be used. The genital area should be washed before collecting a specimen. The best time to collect urine is first thing in the morning, and collecting the mid-stream. Individuals should refrain from eating for a half hour after ingesting the urine.

For external use, new or old urine can be applied. Old urine has a higher ammonia content that is more effective on skin **rashes** such as eczema and psoriasis. To store urine for later use, pour it into a dark glass bottle and close it tightly. Keep the bottle in a cool, dark place for at least four days.

A small amount is applied to the affected area with a cotton ball or pad. Continue massaging 5-10 applications to the area until it is soaked. Tape a clean, soaked pad to the area for several hours. The urine can also be sprayed onto the skin. For cosmetic purposes, fresh or 1-2 day-old urine can be lightly massaged into the skin or added in small amounts to moisturizing cream. Some practitioners recommend avoiding the use of soap or lotion after applying urine to the skin. Dryness can be alleviated with **sesame oil**.

Injections of urine are not advised. One of the key components of therapy is the gradual introduction of urine into the body. The abrupt introduction of urine into the bloodstream could exacerbate possible side effects.

Preparation

Because any food, liquids, drugs, and/or medications consumed will affect the urine, an examination of one's diet is recommended before starting urine therapy. Keeping a daily **nutrition** journal will help to chart the body's reaction to different foods and the body's digestive patterns. High consumption of meat, for example, is thought to elevate the body's acid levels, particularly just before **fasting** or undergoing an intensive regime of urine therapy.

Users of urine therapy often keep regular measurements of their acid and alkaline levels, glucose levels, and blood pressure. Monitoring the body's acid and alkaline is accomplished by keeping track of the pH level in the saliva or urine. The ideal pH range

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

for saliva is 6.4 to 7.2; below 6.4 too acidic, above 7.2 too alkaline. Urine pH normally varies from 5.0 in the morning to 8.0 in the evening.

Glucose tests measure the level of sugar in the blood, by millimoles per litres (mmol/l). Normal levels range from 4 to 8 mmol/l during the day, with the lowest levels occurring in the morning and higher measures occurring after meals.

At-home testing kits for pH levels, glucose levels, and blood pressure are available in most stores that carry over-the-counter (OTC) medical products.

Precautions

Urine that will be taken orally should never be heated or boiled. On the other hand, some advocates suggest that boiled urine is best for massage purposes. Boiling should be done in a stainless steel pot.

Proponents are divided on whether or not pregnant women should practice urine therapy. Some believe that it is beneficial for both the mother and the growing fetus. Others advise against it. Because of the fertility properties of urine, birth control pills may be less effective.

Several pre-existing conditions preclude the use of urine therapy. Heavy smokers and people taking therapeutic or recreational drugs should not use their own urine. Those suffering from bladder infections or venereal disease are also advised against ingesting their urine.

Side Effects

Side effects can include **headache**, **diarrhea**, itch and rashes, **pain**, **fatigue**, soreness of the shoulder, and **fever**. An increase in symptoms of the specific illness may also occur. These symptoms can last from a week to six months. Starting the therapy with small doses can alleviate some of these side effects.

Research and general acceptance

Much of the current research is based on anecdotal evidence from users of urine therapy. Nonetheless, its popularity is growing worldwide. The first World Conference on Urine Therapy was held in 1996 in India. Two more conferences were convened at three-year intervals: in 1999 in Germany and in 2003 in Brazil. In the United States, urine therapy advocates cite the works of John W. Armstrong, *The Water of Life: A Treatise on Urine Therapy*, Martha M. Christy, *Your Own Perfect Medicine*, and Coen Van Der Kroon, *The Golden Fountain*.

Although components of urine are extracted to create a number of topical creams and fertility drugs, the drinking of urine is not generally accepted by the Western medical establishment. Dr. Andrew Weil, a noted physician, self-healing expert, and author of *Natural Health, Natural Medicine*, posits that reports of positive results experienced by users have more to do with placebo effects than with the actual healing properties of urine. According to Weil, treatments that elicit negative emotional charges can be result in benefits when the treatment "mobilizes attention and belief." In other words, adhering to urine therapy in spite of one's loathing for it increases its **placebo effect**.

Training and certification

No training or certification is required.

Resources

BOOKS

Christy, Martha M. *Your Own Perfect Medicine*. Mesa, Arizona: Wishland Publishing, 2000.

PERIODICALS

Bouaravong, Natalie. "Urine Therapy" *Berkeley Medical Journal Issues* [cited June 18, 2004]. http://www.ocf.berkeley.edu/~issues/fall02/urine.html.

ORGANIZATIONS

Chinese Association of Urine Therapy. 72 Wu Kon Lio Road, Wuku Industrial Park, Taipei Hsien, Taiwan, Republic of China. 886-2-22988446. http://www.everlifepharm.com/urine/.

OTHER

"Urine Therapy." Biomedx.com/ [cited April 13, 2004]. http://biomedx.com/urine/.

Mary McNulty

Usnea

Description

Usnea is a unique species because it is created through a symbiotic relationship between lichens and alga. Symbiosis refers to the living together of two different organisms. In the case of lichens, both the algae and the fungus benefit from the relationship. Other names for usnea include lichen moss and old man's beard. Usnea can be found in forests in northern North America and are also found in Europe.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Usnea barbata. *(© Petra Wegner / Alamy)*

Some usnea are able to keep growing even after being broken off from the parent organism. Usnea are very sensitive to the air quality and may be killed by absorbing pollutants. In fact, usnea are used as indicators of regional pollution levels.

When a fungus and analga combine, the resulting organism does not resemble either component. The fungal component has the main influence over the appearance and is the determinant for the species name of each lichen. The local environment also influences the appearance of the lichen. In general, usnea appear as long, hairy or fuzzy strings that hang from trees, rocks, and decomposing wood. The fibers (branches) of usnea are round and contain a slender white cord at the core. During wet conditions, the white cord has elastic properties. Lichens are usually gray or green in color that varies depending upon the algal component. For instance, green lichens have a green algal component. Some usnea are able to keep growing even after being broken off from the parent organism.

KEY TERMS

Gram-positive/negative—A classification system that differentiates bacteria into two classes based upon staining characteristics determined by the composition of the cell wall. Usnea are effective against gram-positive bacteria.

Lichen—An organism consisting of algal and fungal partners living together in a mutually beneficial relationship. Usnea are lichens.

Symbiotic—The living together of two different organisms. Symbiotic relationships can be mutually beneficial, beneficial to one partner and not harmful to the other partner, or beneficial to one partner and harmful to the other partner.

Usnea are very sensitive to the air quality and may be killed by absorbing pollutants. In fact, usnea are used as indicators of regional pollution levels.

The primary active ingredient in usnea is usnic acid. Usnic acid protects the lichen from overexposure to light and its bitter taste prevents invertebrates (creatures that lack a spinal cord) from eating it. Usnic acid has antibacterial and antitumor activities. Against certain bacteria, usnic acid is stronger than the antibiotic penicillin. Usnic acid is effective against gram-positive bacteria including *Streptococcus*, *Staphylococcus*, and *Pneumococcus* but, unlike many antibiotics, does not harm the gram-negative bacteria that live in the gut and vagina. It is also effective against the bacteria that causes **tuberculosis** and may be effective against certain fungi and protozoans (simple, single-celled organisms such as trichomonas). It is believed that usnic acid works by disrupting the metabolism (the chemical and physical processes of an organism) of bacteria while leaving human cells unharmed.

Usnea contains mucilage, which can help ease coughing. It also has expectorant (brings up lung mucous) activity. Mucilage is a thick, slimy substance produced by plants that has a soothing effect on mucous membranes. Herbalists consider usnea a muscle relaxant and an immune system stimulant.

Other constituents of usnea species may include barbatolic, evernic, lobaric, tartaric, thamnolic, stictinic, and usnaric acids.

General use

Usnea was historically used to treat **indigestion** because of its bitter taste and activity as a digestive

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

system stimulant. The peoples of ancient China, Egypt, and Greece used usnea to treat **infections**. In the fourteenth century, it was believed that usnea could strengthen hair because of its hair-like appearance.

Usnea is used to treat abscesses, colds, **cough**, cystitis, **fungal infections** (such as athletes foot or ringworm), gastrointestinal (stomach and intestine) irritations, **influenza**, sore throats (including **strep throat**), respiratory infections (sinusitis, **bronchitis**, **pneumonia**, etc.), skin ulcers, urinary tract infections, and vaginal infections. Extracts of lichens have been used in deodorants and soaps. Usnea is also used to promote healthy teeth and gums and to treat oral infections. It is used by naturopathic physicians to treat mild **cervical dysplasia** (abnormal Pap smear).

Usnea barbata is a homeopathic remedy for headaches and sunstroke. *Usnea hirta* is used as an antibiotic as is *Usnea florida*, which can also be an antituberculosis agent. *Usnea longissima* is used as an expectorant.

Because of the absorbent quality of usnea, it has been used in baby diapers, wound dressings, and feminine napkins (sanitary pads).

Preparations

Usnea is commercially available in bulk form or as a powder, capsule, or tincture.

The tincture should be diluted in water before ingesting or using externally. Usnea tincture may be taken every two hours to treat bacterial infections. Other sources recommend taking 3-4 ml of tincture three times daily.

A usnea tea can be prepared by steeping 2-3 tsp of dried lichen or 1-2 tsp of powdered lichen in 1 cup of boiling-hot water. The tea may be taken three times a day.

In the capsule form, the patient should take 100 mg of usnea three times a day.

Usnea is used externally to treat fungal infections and skin ulcers. It can also be used as a douche to treat cystitis, urinary tract infections, and vaginal infections. Usnea is generally used as a vaginal suppository to treat mild cervical dysplasia. It is taken by mouth to treat colds, strep throat, influenza, sore throats, respiratory infections, and gastrointestinal disorders.

Precautions

Usnea should not be used for more than three weeks in a row. Pregnant women should not use usnea because it may promote uterine contractions.

Side effects

Usnea may cause gastrointestinal disorders.

Interactions

Currently, there are no indications of interactions between usnea and other drugs or herbal medicines.

Resources

BOOKS

"Usnea." In *The Alternative Advisor: The Complete Guide to Natural Therapies and Alternative Treatments*. Virginia: Time-Life Books, 1997.

OTHER

"Lichen Information Sheet: Some Types of Lichen." *http://www.alaskascreensavers.com/gallery/lichens/ak/lichinfo.htm.*

"Usnea Lichens." *http://www.nature.ca/English/treasures/trsite/trplant/tr3/tr3amaze.html.*

Willis, Cindy. "Herb to Know: Usnea." *http://www.wisetouch.com/usnea.html.*

Belinda Rowland

Uterine cancer

Definition

Uterine **cancer** can be divided into two primary forms, cervical and endometrial. Cancer of the cervix most often affects the neck of the cervix or the opening or the opening into the uterus from the vagina. Endometrial cancer affects the inside lining of the uterus.

Description

Cervical cancer is much more prevalent than cancer of the endometrium; some estimate the incidence ratio as 3:1. Statistics from the year 2000 indicated cervical cancer was the second leading cause of cancer deaths in women ages 20-39 years, and the fifth leading cause of cancer death in women from 40-59 years old. Unlike many other cancers, early cancer of the cervix can be identified as much as 10 or more years before the cancer invades other tissues. These visible changes in the structure and activity of the cervical cells are seen under the microscope with Papanicolaou (PAP) tests and are referred to as mild dysplasia. Over a time period of five to 10 years, these abnormal cells may disappear without treatment, or may invade into deeper tissues and progress into a true cancer. The

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

cancerous cells then may spread to endometrium, lymph glands, and nerves in the pelvic region.

As the population ages, cancer of the endometrium is becoming more common. Statistics indicate that approximately 50% of women with postmenopausal bleeding are diagnosed with endometrial cancer. This early symptom of irregular vaginal bleeding often allows removal of the uterus to result in cure of the disease, as endometrial cancer progresses and spreads slowly.

While all women are at risk for developing uterine cancer, specific risk factors for cervical cancer include sexual activity at an early age, and sex with multiple partners. **Infertility**, diabetes, **obesity**, and estrogen therapy place a woman at high risk for endometrial cancer. Other risk factors for uterine cancer include: endometrial hyperplasia, sexual inactivity, undergoing **menopause** after age 59 years, and never having had children.

Causes and symptoms

An important factor linked to cervical cancer is infection with one of the most common sexually transmitted diseases—human papillomavirus (HPV). Some strains of HPV can cause **genital warts** while others have no observable symptoms. Individuals infected with the herpes simplex virus, human immunodeficiency virus (HIV) or acquired immune deficiency syndrome (**AIDS**) are at increased risk for developing cancer of the cervix; the associated suppression of the immune system allows the HPV to more easily invade. Other chronic **infections** and erosions of the cervix also may increase the risk of cervical cancer.

While some women who have precancerous cervical changes experience no symptoms, others notice heavier or longer menstrual periods or vaginal bleeding after douching, intercourse or between periods. Symptoms of more advances stages of uterine cancer may include foul smelling vaginal discharge, rectal pressure or **constipation**, loss of appetite, **fatigue**, and back or leg **pain**.

Diagnosis

An annual PAP test and pelvic examination beginning as soon as young woman becomes sexually active, or between the age 17-20 years, are the most important diagnostic steps for early detection of uterine cancer. The PAP smear can pick up cervical dyplasia and the conventional physican may then perform a colposcopy and biopsy of the cervix to give a better understanding of the abnormalities. If only a small area of the cervix is affected, the recommendation may be made for more frequent PAP tests (about every three to six months) to monitor for changes in the cells of the cervix. Additional diagnostic tests for uterine cancer may include laparoscopy, laparotomy, or vaginosonography.

A Food and Drug Administration (FDA) advisory panel suggested adding a screening test for HPV in addition to Pap smears since HPV is such a high risk factor for cervical cancer. The screening test could help separate women at high risk for more frequent screening than women not at high risk.

Treatment

After **cervical dysplasia** has been found, several herbal remedies and supplements may be helpful. Practitioners of herbal medicine refer to this class of herbs as *emmenagogues* that includes supplements such as **squawvine**, **motherwort**, true unicorn, false unicorn, **black cohosh**, and **blessed thistle**. Studies have shown that as many as 67% of women with cervical dysplasia are deficient in various nutrients, including folate, beta-carotene, **selenium**, and vitamins B_6 and C. While these studies make no claim that taking a multivitamin or mineral supplement can reverse advanced cervical dysplasia, taking these supplements preventively may make sense.

The woman with uterine cancer will also benefit from nutritional supplements and a diet aimed at

KEY TERMS

Endometrium—The inside lining of the uterus.

Hyperplasia—An overgrowth of cells that results in increased size of a body organ.

Hysterectomy—Surgical removal of the uterus and proximal vagina.

Laparoscopy—An examination of the interior of the abdomen with a lighted tube called a laparoscope.

Laparotomy—Surgical operation performed to open the abdomen for inspection of the internal organs, or as a preliminary step to additional surgery.

Pelvic lymphadenectomy—Surgical removal of the lymph nodes and passageways within the pelvis.

Total pelvic exenteration—Surgical procedure involving removal of the rectum, lower portion of the large intestine, the urinary bladder, the pelvic reproductive organs, lymph nodes, pelvic muscles, and perineum. Both urinary and fecal diversions are required for this surgery.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

strengthening the immune system. **Echinacea** and **garlic** supplements may not only have positive effects on immunities, but also counteract the side effects of cancer treatment. Many trace elements, flavonoids, and other phytochemicals are provided by eating a well balanced diet that may not be provided in a pill. Even with relatively low levels of dietary intake, shiitake mushrooms, lentinus edodes, laminaria sea vegetables, and kombu **kelp** are believed to have anticancer properties. The use of any supplements or specific dietary modification should be discussed with the physician treating the cancer in order to avoid any undesirable drug interactions or side effects.

Research emphatically supports the mind-body connection when considering the health of the individual with cancer. Studies have also shown the positive effects of imagery on boosting immunities and natural killer cells. Visualization of the dominant white blood cells successfully attacking weak cancer cells can not only have a positive effect on the mood and mental status, but may also shrink tumors and extend the life of a patient with cancer. Laughter has also been found to enhance immunities and stimulate the sympathetic nervous system, pituitary gland, and the hormones that reduce **stress**, inflammation, and pain.

In addition to the well known effects of massage for **relaxation** and stress reduction, there are other physiologic effects that may help the individual with cancer. Massage may slow the body's release of the stress hormone cortisol, decreasing **anxiety** and allowing for more effective periods of sleep and regeneration. Massage has also been found to increase the production of serotonin, which can improve overall mood and immune status.

Allopathic treatment

Early stages of cervical dysplasia may require only frequent re-evaluation to monitor progression or regression of the abnormal cells. Regression of abnormal cells may occur due to the immune response or lifestyle changes, such as discontinuing **smoking** or oral contraceptive use. In more advanced cases, the cervical lining may be removed via cautery, freezing or laser procedures.

Age, overall health status, and the presence of other abnormal findings will impact on the selection of most appropriate treatment plan for uterine cancer. Surgery may be presented as a treatment option for invasive cancer. Extent of the surgical procedures will depend upon the stage of the cancer. A hysterectomy, lymphadenectomy, or total pelvic exenteration may be recommended. Radiation therapy may be offered instead of, or in addition to, surgical removal of the affected tissues. Depending on the individual's disease stage, and the response and tolerance to the radiation, treatment may be provided by external beams directed over the pelvis, or by the insertion of radium tubes into the uterus and/or vagina. Chemotherapy may also be recommended, involving the infusion of tumor-fighting drugs directly into the circulatory system.

Expected results

The outcomes for the individual with uterine cancer are significantly related to the stage of the disease when cancer is found and treatment initiated. Early interventions can result in nearly 100% cure rates, while those individuals whose cancer is not discovered until abnormal tissue growth has invaded surrounding organs may have less positive outcomes. Those with advanced disease may experience pain, vaginal bleeding and/or foul smelling discharge, and intestinal obstruction.

Prevention

The best preventive measure against uterine cancer is an annual pelvic examination and PAP test. In fact, a 2002 report from the College of American Pathologists stated that 80 percent of the women who die from cervical cancer had not had a Pap test in the five years preceding their diagnosis. Recognition of risk factors for uterine cancer, along with an awareness of the early signs and symptoms of cervical dysplasia, can promote the early detection of changes in the cervical cells.

Resources

BOOKS

Fugh-Berman, Adriane. *Alternative Medicine: What Works.* Baltimore, MD: Williams and Wilkins, 1997.

Gottlieb, James. *New Choices in Natural Healing.* Emmaus, PA: Rodale Press, Inc., 1995.

PERIODICALS

Bence, Sharlene. "Stop Cervical Cancer in Its Tracks." *Nursing Management* (April 2000): 40-43.

"College of American Pathologists Applauds New Pap Test Guidelines." *Women's Health Weekly* (May 30, 2002):12.

Frieden, Joyce. "FDA Advisory Panel; Backs HPV Test as Pap Smear Adjunct (Identifies High-Risk Strains)." *Family Practice News* (June 15, 2002):30 –31.

Kathleen Wright
Teresa G. Odle

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Uterine fibroids

Definition

Uterine fibroids (also called leiomyomas or myomas) are benign growths of the muscle inside the uterus. They are not cancerous, nor are they related to **cancer**. Fibroids can cause a wide variety of symptoms, including heavy menstrual bleeding and pressure on the pelvis.

Description

Uterine fibroids are extremely common. About 25% of women in their reproductive years have noticeable fibroids. There are probably many more women who have tiny fibroids that are undetected.

Fibroids develop in women between the ages of 30–50. They are never seen in women younger than 20 years old. After **menopause**, if a woman does not take estrogen, fibroids shrink. It appears that African American women are much more likely to develop uterine fibroids.

Fibroids are divided into different types, depending on the location. Submucous fibroids are found in the uterine cavity; intramural fibroids grow on the wall of the uterus; and subserous fibroids are located on the outside of the uterus. Many fibroids are so large that they fit into more than one category. The symptoms caused by fibroids are often related to their location.

Colored pelvic x ray of a 65 year old woman's calcified fibroid in her uterus. A fibroid is a benign tumor of fibrous and muscular tissue. *(SPL / Photo Researchers, Inc.)*

KEY TERMS

Anemia—Low blood count.

Embolization—A new technique that shrinks fibroids by cutting off their blood supply.

GnRH antagonists—A group of medications that affect the reproductive hormones. These medications are used to treat fibroids, endometriosis, and infertility.

Hysterectomy—Removal of the uterus (with or without removal of the ovaries) by surgery. The surgery can be performed through an incision in the abdomen, or the uterus can be removed through the vagina.

Leiomyoma—The medical term for a benign mass in muscle tissue. Uterine fibroids are one type of leiomyoma.

Menopause—The end of the reproductive years, signaled by the end of menstrual periods. Also known as "the change."

Osteoporosis—A condition that frequently occurs in older women in which the bones lose calcium and become increasingly brittle.

Causes and symptoms

No one knows exactly what causes fibroids. The growth of fibroids, however, appears to depend on the hormone estrogen. Fibroids often grow larger when estrogen levels are high, as in **pregnancy**. Medications that lower the estrogen level can cause the fibroids to shrink.

The signs and symptoms of fibroids include:

- Heavy uterine bleeding. This is the most common symptom, occurring in 30% of women who have fibroids. The excess bleeding usually happens during the menstrual period. Flow may be heavier, and periods may last longer. Women who have submucous or intramural fibroids are most likely to have heavy uterine bleeding.
- Pelvic pressure and pain. Large fibroids that press on nearby structures such as the bladder and bowel can cause pressure and pain. Larger fibroids tend to cause worse symptoms.
- Infertility. This is a rare symptom of fibroids. It probably accounts for less than 3% of infertility cases. Fibroids can cause infertility by compressing the uterine cavity. Submucous fibroids can fill the

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

uterine cavity and interfere with implantation of the fertilized egg.

- Miscarriage. This is also an unusual symptom of fibroids, probably accounting for only a tiny fraction of the miscarriages that occur.
- Pregnancy complications. Fibroids can greatly increase in size during pregnancy, because of increased levels of estrogen. They can cause pain, and even lead to premature labor.

Diagnosis

A health-care provider can usually feel fibroids during a routine pelvic examination. Ultrasound can be used to confirm the diagnosis, but this is not generally necessary.

Treatment

There are several natural treatments that help lower estrogen levels and slow the growth of the benign tumors. One study of alternative and complementary treatments for uterine fibroids found, however, that the cost of the alternative remedies was significantly higher than the cost of conventional treatments.

Nutritional therapy

There are several things women can do nutritional-wise to avoid having fibroids or prevent them from getting bigger:

- Eat more fruits, green or sea vegetables, whole grains, nuts, and seeds.
- Eat more soy foods such as tofu, tempeh, miso, or soy burger. Soy products contain isoflavones, which help reduce high levels of estrogens in the body.
- Avoid foods with high fat or sugar content, caffeine, or alcohol.
- Avoid eating produce sprayed with insecticides

Nutritional supplements

The following supplements may be helpful in lowering estrogen levels and controlling fibroids:

- Bromelain: reduces inflammation.
- Choline: may improve liver function.
- Flaxseed: helps reduce excessive production of estrogens and other hormones.
- Vitamin E and evening primrose oil: helps regulate hormone production and may even shrink the fibroids.
- Vitamin C and bioflavonoids: have antiinflammatory and antioxidant effects.

Herbal treatment

Kuei-chih-fu-ling-wan (Keishi-bukuryo-gan; KBG) is a traditional Chinese herbal preparation that can effectively shrink fibroid tumors in 60% of patients, according to one study conducted by Japanese scientists. KBG is a mixture of the following herbs: cassia bark (*Keihi*), herbaceous peony roots (*Shakuyaku*), peach kernels (*Tounin*), herbaceous fungus (*Bukuryo*), and root bark of peony (*Botanpi*). In addition to reducing fibroid size, KBG also successfully alleviated fibroid symptoms such as severe menstrual bleedings or menstrual **pain** in 90% of the women in the study. These researchers suggest that KBG may work by inhibiting the production of sex hormones including estrogen. Unlike many other presently available herbal preparations that may be effective but lack scientific evidence to support their uses, KBG is proven safe as well as having few side effects. Women with fibroids, therefore, have one more alternative treatment to hysterectomy.

There are many herbal formulas that can be used depending on specific symptoms and body types. Another herbal treatment that may also be effective is wild yam progesterone cream. However, these are potent drugs and patients should consult their doctors before trying any of these treatments.

Homeopathy

A homeopathic physician may prescribe patient-specific homeopathic remedies to control fibroid symptoms.

Allopathic treatment

Not all fibroids cause symptoms. Even fibroids that do cause symptoms may not require treatment. In the majority of cases, the symptoms are inconvenient and unpleasant, but do not result in health problems.

Occasionally, fibroids lead to such heavy menstrual bleeding that the woman becomes severely anemic. In these cases, treatment of the fibroids may be necessary. Very large fibroids are much harder to treat. Therefore, many doctors recommend treatment for moderately-sized fibroids, in the hopes of preventing them from growing into large fibroids that cause worse symptoms.

The following are possible treatment plans:

- Observation. Most women already have symptoms at the time their fibroids are discovered, but feel that they can tolerate their symptoms. Therefore, no active treatment is given, but the woman and her

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

physician stay alert for signs that the condition might be getting worse.

- Hysterectomy. This procedure involves surgical removal of the uterus, and it is the only definitive cure for fibroids. In fact, 25% of hysterectomies are performed because of symptomatic fibroids. A gynecologist can remove a fibroid uterus during either an abdominal or a vaginal hysterectomy. The choice depends on the size of the fibroids and other factors such as previous births and previous surgeries.
- Myomectomy. In this surgical procedure only the fibroids are removed; the uterus is repaired and left in place. This is the surgical procedure many women choose if they are not finished with childbearing. At first glance, it seems that this treatment is a middle ground between observation and hysterectomy. However, myomectomy is actually a difficult surgical procedure, more difficult than a hysterectomy. Myomectomy often causes significant blood loss, and blood transfusions may be required. In addition, some fibroids are so large, or buried so deeply within the wall of the uterus, that it is not possible to save the uterus, and a hysterectomy must be done, even though it was not planned.
- Lowering estrogen levels. Since fibroids are dependent on estrogen for their growth, medical treatments that lower estrogen levels can cause fibroids to shrink. A group of medications known as GnRH antagonists can dramatically lower estrogen levels. Women who take these medications for three to six months find that their fibroids shrink in size by 50% or more. They usually experience dramatic relief of their symptoms of heavy bleeding and pelvic pain.
- Uterine artery embolization (UAE). Embolization is a newer alternative to hysterectomy that shrinks fibroids by cutting off their blood supply. In UAE, the surgeon inserts a catheter into the uterine arteries. Small particles of polyvinyl foam or other inert substances are injected through the catheter into the arteries. The particles form an embolus, or clump, that blocks the blood supply to the fibroids and causes them to shrink. UAE is still controversial, however, because it has been associated with significant complications.

Unfortunately, GnRH antagonists cause unpleasant side effects in over 90% of women. The therapy is usually used for only three months, and should not be used for more than six months because the risk of developing brittle bones (osteoporosis)begins to rise. Once the treatment is stopped, the fibroids begin to grow back to their original size. Within six months, most of the old symptoms return. Therefore, GnRH agonists cannot be used as long-term solution. At the moment, treatment with GnRH antagonists is used mainly in preparation for surgery (myomectomy or hysterectomy). Shrinking the size of the fibroids makes surgery much easier, and reducing the heavy bleeding allows a woman to build up her blood count before surgery.

Fibroids can cause problems during pregnancy because they often grow in size. Large fibroids can cause pain and lead to premature labor. Fibroids cannot be removed during pregnancy because of the risk of injury to the uterus and hemorrhage. GnRH antagonists cannot be used during pregnancy. Treatment is limited to pain medication and medication to prevent premature labor, if necessary.

Expected results

Many women who have fibroids have no symptoms or have only minor symptoms of heavy menstrual bleeding or pelvic pressure. However, fibroids tend to grow over time, and gradually cause more symptoms. Many women ultimately decide to have some form of treatment. Currently, hysterectomy is the most popular form of treatment.

Prevention

Eating healthy, reducing **stress**, and exercising regularly is the preferred preventive treatment of many diseases including fibroids.

Resources

BOOKS

Bruce, Debra F. "Fibroids." In *The Unofficial Guide to Alternative Medicine*. New York, NY: McMillan General Reference, 1998, pp. 278-281.

Fetrow, Charles W., and Juan R. Avila. "Wild Yam." In *The Complete Guide to Herbal Medicines*. Springhouse, PA: Springhouse Corporation, 2000.

Friedman, Andrew J. "Uterine Fibroids." *Primary Care of Women*. edited by Karen J. Carlson and Stephanie A. Eisenstat. St. Louis, Missouri: Mosby-Year Book, Inc., 1995, pp. 275-278.

Muto, Michael G., and Andrew J. Friedman. "Leiomyomas." In *Kistner's Gynecology*. Sixth edition. Edited by Kenneth J. Ryan, Ross S. Berkowitz, and Robert L. Barbieri, St. Louis, MO: Mosby, 1995, pp. 147-149.

Zand, Janet, Allan N. Spreen, and James B. LaValle. "Fibroids, Uterine." In *Smart Medicine for Healthier Living: A Practical A-to-Z Reference to Natural and Conventional Treatments for Adults*. Garden City Park, NY: Avery Publishing Group,1999: 282-285.

PERIODICALS

Lumsden, M. A. "Embolization versus Myomectomy versus Hysterectomy: Which Is Best, When?" *Human Reproduction* 17 (February 2002): 253-259.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Mehl-Madrona, L. "Complementary Medicine Treatment of Uterine Fibroids: A Pilot Study." *Alternative Therapies in Health and Medicine* 8 (March-April 2002): 34-6, 38-40, 42, 44-6.

Sakamoto, Shinobu, Haruno Yoshino, and Yaeko Sharahata. "Pharmacotherapeutic Effects of Kuei-chih-fu-ling-wan (Keishi-bukuryo-gan) on Human Uterine Myomas." *American Journal of Chinese Medicine* (1991): 313-317.

Todd, A. "An Alternative to Hysterectomy." *RN* 65 (March 2002): 30-34.

Watson, G. M., and W. J. Walker. "Uterine Artery Embolisation for the Treatment of Symptomatic Fibroids in 114 Women: Reduction in Size of the Fibroids and Women's Views of the Success of the Treatment." *British Journal of Obstetrics and Gynecology* 109 (February 2002): 129-135.

Mai Tran
Rebecca J. Frey, PhD

Uva ursi

Description

Uva ursi is a Latin name which means bear's grape. Its botanical name is *Arctostaphylos* and it is of the Ericaceae family. Other common names include bearberry, kinnikinnick (the name given to it by native Americans), whortleberry, spreng, mountain cranberry, and mealberry. It is a low-growing evergreen plant, usually reaching no more than 16 in (41 cm) in height.

Growing in the cooler, northern climates, uva ursi likes well-drained sandy soil and a sunny location. It can be found in the mountainous areas of Europe, Asia and America, where it is commonly used for ornamental purposes, mostly as shrubbery or hedging. It is widely found in Canada and the United States, but no further south than Wisconsin and New Jersey. In the British Isles, it is common in the Highlands of Scotland, the hilly areas of Ireland, and as far south as Yorkshire in England.

Uva ursi. *(©PlantaPhile, Germany. Reproduced by permission.)*

Uva ursi bears many pink or white flowers, which may be tinged with red, and grow in clusters. Bears are known to be fond of its red berries, hence the common name. The leaves, which are the part of the plant used for medicinal purposes, are smooth-edged, leathery, small, (between half an inch to an inch long), and oval. They are dark green in color and have lighter undersides. The leaves have no odor but are to be distinguished by their exceedingly bitter taste. They are attached to the branch by a very short stem. The branches tend to trail, are covered with a light brown bark, and are inclined to form a thick mass one to two feet long. Shoots rise obliquely from the stems and have soft hairs.

The chemical constituents of uva ursi include:

- arbutin (a glycoside) up to 10%, which is converted to hydroquinone in alkaline urine, thus releasing its active ingredient
- methyl arbutin
- flavonoids
- tannins, which can irritate stomach lining if taken in large quantities or over a long period of time
- alantoin
- phenolic acids (gallic and ellacic)
- volatile oil
- resin
- ursolic acid, which is known to be an effective diuretic
- quercetin and myricetin (coloring)

On incineration, the leaves yield approximately 3% ash. Uva usi also contains the following nutrients:

- vitamin A
- iron
- manganese
- selenium
- silicon

General use

Uva ursi, which is generally categorized as a treatment for the urinary and glandular systems, was commonly included in all the old pharmacopoeias, where it

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Astringent—Drying effect.
Infusion—To make a tea.
Prophylactic—Preventative measure.

was sometimes mistakenly named Arbutas, and classified as such.

It has also been included in the modern pharmacopoeias due to its many medicinal uses and the fact that modern research has not detracted from the high esteem in which it is held in alternative health circles. The leaves of uva ursi are used mainly for kidney and urinary infections , for which it is exceptionally effective, having both anti-inflammatory and antiseptic properties. It is a famous herbal cure for cystitis, from which most women suffer at some time or another. It is also effective for the treatment of **kidney stones**, as it acts on these by softening them and has muscle relaxant properties, which may be beneficial here.

Other illnesses for which it has been used include Bright's disease, dysentery, nephritis, **gonorrhea** and syphilis, excessive **menstruation**, stimulation of the spleen, liver and pancreas, **hemorrhoids**, **menopause**, and diabetes. Research has indicated that the herb is more effective in its whole state than when broken down into components.

Some of the other uses for which uva ursi is also known include the following:

- Some native Americans combined it with tobacco and smoked it.
- Its astringent properties make it useful for infections (it dries them up).
- The tea may be used as an antiseptic for cuts and abrasions.
- It is sometimes used as a weight loss aid because it promotes production of urine, being an effective diuretic.
- In some places, notably Russia, it is drunk as a tea.
- Uva ursi is one of the rare herbs that can be helpful in cases of bedwetting.
- Uva ursi has such a high tannin content, that in Sweden and Russia, the leaves have actually been used to tan leather.
- In Scandinavia, an ash colored dye is made from the plant.
- Uva ursi berries are used as food for grouse.

Preparations

The leaves of the uva ursi plant may be harvested at any time, although traditionally this precious medicinal herb is gathered in late summer or autumn. The leaves should be picked in the morning after the dew has dried. They should then be left in a well-aired place to dry naturally and then stored in an airtight container (preferably glass or stainless steel, as these won't react with the volatile oils) to keep them dry, as they have a tendency to reabsorb moisture from the atmosphere. The hairs, which are present in growing uva ursi leaves, are absent once the herb is dried because they drop off in the drying process.

A guide to dosages of uva ursi preparations is as follows:

- Herbal extracts, as capsules or tablets, 250-500 mg three times daily.
- Tinctures, (which are alcohol-based), 5ml three times daily.
- For the purpose of treating urinary tract infections, 6-8 g of bicarbonate of soda in a glass of water should also be taken. This ensures alkalinity of the urine, thus releasing the active ingredient from the uva ursi. Another way to ensure alkalinity of the urine is to adhere to a vegetarian diet with lots of raw fruits and vegetables for a period.
- The leaves may be wrapped in gauze, and added to bath water for the treatment of hemorrhoids, inflammations and skin infections.
- Uva ursi should not be taken for more than two weeks at a time and individuals with high blood pressure should not take it at all. Some practitioners assert that this herb should not be used for more than three days at a time, as it can irritate mucous membranes.
- May be taken as a tea (infusion) for the treatment of minor vaginal irritations, menstrual bloating, and diabetes.

Uva ursi tea should not be boiled, as it becomes bitter and unpalatable and poisonous compounds may result. It is sufficient to prepare an infusion, by soaking the leaves for a few hours in cold water. This mode of preparations inhibits the release of tannins, which may irritate the stomach lining. Alternatively, boiling water may be added to the leaves, (one pint of water to 1 oz of leaves), which should then be allowed to steep for a while.

Some practitioners recommend always combining uva ursi with march mallow root or other mucilaginous diuretics.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Although high doses of uva ursi are not recommended for long periods, one cup of the tea is permissible as a prophylactic in cases of recurring cystitis. However, it is preferable to discontinue even this for intermittent periods.

Precautions

Occasionally, uva ursi is adulterated with other herbs, most notably cowberry and box, which will render the remedy less effective. Care must be taken to obtain the remedy from a reputable dealer.

Pregnant women should not take uva ursi and it should not be given to small children unless under the supervision of a health care practitioner.

Long term use of uva ursi is not recommended as hydroquinone (produced as a body-reaction with uva ursi) is poisonous in large amounts. Practitioners recommend that it be taken for no more than two weeks at a time.

Despite the powerful antiseptic/antibiotic properties of uva ursi, a natural health practitioner should be consulted if it is being used for infection.

It should be noted that practitioners recommend all alternative treatments should be used in conjunction with a healthy lifestyle.

Side effects

Uva ursi has been known to cause mild nausea. Fruit juice, **vitamin C**, and other acidic foods should not be taken with uva ursi preparations, in order to promote a pH balance in the body, thus preserving effectiveness of the remedy. If a patient develops any of the following toxic reactions that may be provoked by uva ursi, such as **nausea** and **vomiting**, shortness of breath, convulsions, ringing in the ears or even delirium and faintness, medical help should be sought immediately.

The bicarbonate of soda, which is recommended to be taken with uva ursi in cases of urinary tract infection, is unsuitable for those who suffer from high blood pressure, and in any case should not be taken for more than two weeks.

Uva ursi is not recommended for use during pregnancy as it may restrict blood supply to the fetus, due to its astringent properties.

Interactions

Uva ursi should not be taken in conjunction with the herb **buchu**, and should also not be taken with **cranberry** or anything containing cranberries. It should also not be used in conjunction with any drugs, which induce acid urine. Uva ursi may temporarily turn the urine green, which is a harmless side effect.

Arbutin, which is a constituent of uva ursi, is known to increase the anti-inflammatory effect of synthetic cortisone two. This may mean that a decrease in dosage could be considered.

Resources

HealthNotes. http://www.healthnotes.com.
MotherNature.com. http://www.mothernature.com/ency/Herb/Uva_Ursi.asp.
Snowbound Herbals. http://www.sbherbals.com/021999HotM.html.

Patricia Skinner

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

V

Vaginitis

Definition

Vaginitis is a condition characterized by inflammation of the vagina and vulva, most often caused by a bacterial, fungal, or parasitic infection.

Description

Vaginitis, vulvitis, and vulvovaginitis are general terms that refer to the inflammation of the vagina and/or vulva (the external genital organs of a woman). These conditions can be caused by bacterial, fungal, or **parasitic infections**; or by any type of allergic or irritation reaction to such things as spermicidal products, condoms, soaps, and bubble bath. A type of vaginitis that is caused by a low estrogen level is called atrophic vaginitis.

In general, vaginitis causes one or more of these symptoms: vaginal discharge; irritation; a burning sensation; and itching. One of the most common reasons women visit their doctor is because of a change in their vaginal discharge. It is completely normal for a woman to have a vaginal discharge, with the amount and consistency varying during the course of the menstrual cycle. The three most common types of vaginitis are bacterial vaginosis, candida vulvovaginitis, and **trichomoniasis**. Each will be discussed separately.

Bacterial vaginosis

Bacterial vaginosis is the most common cause of vaginitis during the childbearing years. Forty percent to 50% of vaginitis cases are caused by bacterial vaginosis. The occurrence of bacterial vaginosis is difficult to determine, but studies have proposed that 10–41% of women have had it at least once. The occurrence of bacterial vaginosis in the United States is highest among African-American women and women who have had multiple sexual partners, and is lowest among Asian women and women with no history of sexual contact with men. Bacterial vaginosis is not considered a sexually transmitted disease although it can be acquired through sexual intercourse. Recent findings indicate that bacterial vaginosis can be transmitted among women who have sex only with women, if vaginal secretions are exchanged.

Bacterial vaginosis is not caused by a particular organism but by a change in the balance of normal vaginal bacteria or by a change in the pH balance. Ninety percent of the bacteria found in a healthy vagina belong to the genus *Lactobacillus*. For various reasons, there is a shift in the bacterial population that results in overgrowth of other bacteria. Patients suffering from bacterial vaginosis have very high numbers of such bacteria as *Gardnerella vaginalis*, *Mycoplasma hominis*, *Bacteroides* species, and *Mobiluncus* species; and these bacteria can be found at numbers 100–1,000 times greater than are found in the healthy vagina. In contrast, *Lactobacillus* bacteria are very low in number or completely absent from the vagina of women with bacterial vaginosis.

Candida vulvovaginitis

Candida vulvovaginitis also has been called vulvovaginal candidiasis, candidal vaginitis, monilial infection, or vaginal **yeast infection**. Twenty to 25% of the vaginitis cases are candida vulvovaginitis. It has been estimated that about 75% of all women get a vaginal yeast infection at least once. In 80–90% of the cases, candida vulvovaginitis is caused by an overgrowth of the yeast *Candida albicans*. The remaining cases are caused by other species of *Candida*. It is not known what causes the yeast overgrowth. However, it is known that antibiotics can inadvertently kill normal bacteria in the vagina and cause an overgrowth of *Candida*.

Candida vulvovaginitis is not considered a sexually transmitted disease because *Candida* species are commonly found in the healthy vagina. It is rare to

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Atrophic vaginitis—An inflammation of the vagina that develops when the estrogen levels in the body drop. It is usually associated with normal menopause or with surgical removal of the ovaries, but can occur with breast-feeding or premature menopause.

Parasite—An animal or plant that can only survive by living inside or upon another animal or plant.

pH—A measurement of the acidity or alkalinity (basicity) of a solution. A low pH indicates an acid solution; a high pH indicates a base, or alkaline, solution. The normal vaginal pH is 4-4.5.

Vaginosis—Bacterial infection of the vagina, caused by an overgrowth of bacteria that normally live in the vagina.

Vulva—The external genital organs of a woman, including the outer and inner lips, clitoris, and opening of the vagina.

find this disease in girls before puberty and in celibate women. Vaginal yeast **infections** tend to occur more frequently in women who are pregnant; diabetic and not controlling their disease; taking birth control pills, steroid drugs, or antibiotics; and those with the human immunodeficiency virus (HIV). The occurrence of four or more attacks per year is called recurrent vaginal candidiasis.

Trichomoniasis

Trichomoniasis, which is sometimes called "trich," accounts for 15–20% of the cases of vaginitis. It is estimated that two million to three million American women get trichomoniasis each year. Unlike the previous two types of vaginitis, trichomoniasis is primarily a sexually transmitted disease in that the disease is passed from person-to-person primarily by sexual contact. Trichomoniasis occurs in both men and women and is caused by an infection with the single-celled parasite *Trichomonas vaginalis*. Infection with *Trichomonas vaginalis* is frequently associated with other sexually transmitted diseases and helps spread the **AIDS** virus.

Causes and symptoms

Vaginitis is most often caused by a bacterial, fungal, or parasitic infection as described above. Other microorganisms may cause vaginitis, or it may be caused by allergic reaction, irritation, injury, low estrogen levels, and certain diseases. Common causes of bacterial vaginosis include:

- Repeated sexual intercourse over a short period of time, which raises vaginal pH and results in growth of bacteria and infection-like symptoms.
- Chronic vulvar dampness, aggravated by stress or restrictive, nonabsorbent synthetic clothing.
- Chemical irritants.
- Antibiotics, which disrupt the natural vaginal (and bowel) bacterial environment.

Additional risk factors for bacterial vaginosis include **stress**; a poor diet; use of an intrauterine device (IUD); being a member of a non-white race; a history of at least one prior **pregnancy**; first sexual activity at an early age; having multiple sex partners, and a history of sexually transmitted diseases.

Persons at an increased risk for candida vulvovaginitis include those who have had previous candida infections, have AIDS, or are diabetic; women who use douches, perfumed feminine hygiene sprays, vaginal sponges, or an IUD; those taking birth control pills, antibiotics, or corticosteroids; and those who wear tight clothing, are pregnant, or engage in frequent sexual intercourse.

The typical symptoms of vaginitis are vaginal discharge, **itching**, burning sensation, and irritation. Some women have few or no symptoms, while others may have pronounced symptoms. The main symptom of bacterial vaginosis is a fishy-smelling, thin, milky-white or gray vaginal discharge. Itching and burning may also be present. The fishy smell is stronger after sexual intercourse. The symptoms of *candida vulvovaginitis* are itching, soreness, painful sexual intercourse, and a thick, white, curdy (like cottage cheese) vaginal discharge. Trichomoniasis symptoms in women range from none at all to painful urination; painful sexual intercourse; and a yellow-green to gray, foul-smelling, sometimes frothy, vaginal discharge. In men, trichomoniasis may present no symptoms, or it may be associated with urethral discharge or persistent urethritis (inflammation of the urethra).

Diagnosis

Vaginitis can be diagnosed and treated by a nurse practitioner or physician. Most insurance companies cover the costs of diagnosis and treatment. To diagnose vaginitis, the doctor will examine the vagina (using a speculum to keep the vagina open) and take a sample of the vaginal discharge for tests and microscopic analysis. Laboratory culture results should be

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

available in two to three days, but the microscopic examination of the vaginal discharge may be performed immediately in the doctor's office. Diagnosis may be difficult because there are many different causes of vaginitis. Women who think that they have vaginitis should always visit their doctor to get an accurate diagnosis. Many women assume that they have a yeast infection and take over-the-counter medicines without first consulting their doctors.

To make a diagnosis of bacterial vaginosis, the doctor will check for four signs, called Amsel's criteria. These signs are: a thin, milky-white discharge that clings to the walls of the vagina; presence of a fishy odor; a vaginal pH of greater than 4.5; and the presence of "clue cells" in the vagina. Clue cells are vaginal cells that are covered with small bacteria. A diagnosis of candida vulvovaginitis is made after finding a normal vaginal pH (4–4.5) as well as the presence of many yeast cells in the sample of vaginal discharge or growth of yeast on laboratory media. A trichomoniasis diagnosis is made when the parasites are found in the vaginal discharge either by microscopic examination or in laboratory cultures. The newest system for testing for trichomoniasis is the InPouch test, which is more accurate than the older wet-mount method and easier to perform.

Treatment

Herbal remedies for vaginal infections are being aggressively investigated as of 2002 in hopes of lowering the rates of sexually transmitted diseases in developing countries that cannot afford Western allopathic treatments. Chinese, Ayurvedic, naturopathic, and homeopathic treatments for vaginitis are all being studied.

One of the primary focuses of alternative treatment for vaginal conditions including vaginitis is rebalancing the normal vaginal flora. To assist with this rebalancing, *Lactobacillus acidophilus* and *L. bifidus* are recommended, either taken internally or introduced directly into the vagina. Plain yogurt with live acidophilus cultures or **acidophilus** powder or capsules may be eaten. Yogurt can be inserted directly into the vagina or a tampon can be soaked in yogurt and inserted. **Garlic** (*Allium sativum*), taken both internally and inserted into the vagina (a peeled whole clove wrapped in gauze), may be helpful due to its antibacterial and antifungal actions. A variety of other herbs can be used as douches or in suppository form to help treat acute flare-ups of vaginal symptoms. For example, one remedy for reducing inflammation is a douche made by adding 1–2 tsp of **calendula** (*Calendula officinalis*) to boiling water, steeping the mixture, and letting it cool before using.

Herbal remedies for yeast infections also include a variety of antifungal, antiseptic, or immune-strengthening agents such as tea tree oil (inserted via a soaked tampon, douche, or suppository), black walnut (*Juglans nigra*), pau d'arco (*Tabebuia impestiginosa*), echinacea (*Echinacea* species), and **goldenseal** (*Hydrastis canadensis*). Echinacea and goldenseal should be taken only for a limited time. As with many herbs, medical supervision may be advised for those with certain health conditions. Persons with specific **allergies** may not be able to use some remedies. For example, **echinacea** should not be used by anyone allergic to plants in the sunflower family, and goldenseal should not be used during pregnancy or by anyone allergic to ragweed.

A boric acid douche can help to acidify the vaginal pH so that unwanted bacteria cannot survive and multiply. Because some women may be sensitive to this douche, a health professional should oversee this treatment. Also, care must be taken to keep boric acid away from children. Vaginal pH may also be lowered by using Summer's Eve medicated douche, which contains **potassium** iodide, or a vinegar douche (1 tbsp of vinegar per quart of warm water).

The Gynecological Sourcebook recommends Betadine and gentian violet for treating candida vulvovaginitis. Betadine, an antiseptic **iodine** solution, should not be used by pregnant women. Gentian violet is an antifungal stain. Both solutions are messy and leave stains, and some women may be allergic to either or both of them. *Oxygen Healing Therapies* reports successful treatment of candidiasis with intravenous hydrogen peroxide. Various homeopathic treatments are available over the counter or prepared for individual cases by homeopaths. Commonly cited ingredients are **pulsatilla** and **sepia**. For atrophic vaginitis, especially in menopausal women, topical application of progesterone cream can help symptoms abate by slowing the thinning of the tissue.

Dietary modification and nutritional supplementation may also be helpful in the treatment of vaginitis. Antioxidant vitamins, including A, C, and E, as well as B complex vitamins and **vitamin D** are recommended. *Prescriptions for Nutritional Healing* notes that if atrophic vaginitis is treated with prescription estrogen ointments, the body's need for vitamin B6 is increased. Topical application of **vitamin E** from prepared creams or from torn vitamin E capsules may help relieve itching. Other home remedies for itching from *The Gynecological Sourcebook* include **witch hazel** or cottage cheese compresses; or baths with epsom salts or baking soda followed by blow-drying the vagina and dusting the vagina with cornstarch.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Allergy tests may be useful for women with yeast infections. Additionally, foods that yeast organisms thrive on should be avoided. These foods include cheese, alcohol, chocolate, soy sauce, sugar, vinegar, fruits, and any fermented foods or foods containing molds (e. g., blue cheese). Wearing cotton underwear and loose-fitting clothes and avoiding pantyhose can help keep the vagina cool and dry, thus helping to prevent some forms of vaginitis. For recurrent yeast infections, alternative treatments recommended in *The Gynecological Sourcebook* include boric acid douches in declining doses; oral ingestion of acidophilus with meals; and caprylic acid and myocidin, which are fatty acids derived from antifungal oils. Cases of chronic vaginitis should be addressed on systemic level by an alternative practitioner.

Allopathic treatment

Both bacterial vaginosis and trichomoniasis require prescription medication for treatment. Candidal vulvovaginitis may be treated with either prescription or over-the-counter medicines. It is not advisable to take over-the-counter medications for vaginal yeast infections if one does not in fact have a yeast infection. A survey of 390 gynecologists found that 44% of the women who were diagnosed with bacterial vaginosis had first treated themselves with over-the-counter yeast infection medications.

Bacterial vaginosis should be treated daily for one week with the antibiotics metronidazole (Flagyl, Protostat) or clindamycin (Cleocin), either as pills taken orally or in a gel or cream form inserted into the vagina. Trichomoniasis is treated with either a large single dose of metronidazole or with a smaller dose taken twice daily for one week. Male sexual partners of women with trichomoniasis also must be treated, and intercourse should be avoided until both partners are cured. Possible side effects of the oral antibiotics include **nausea** and adverse reactions to drinking alcohol during the treatment period. Following treatment, natural flora need to be built up again through introduction of acidophilus and other lactobacilli.

Candida vulvovaginitis is most often treated by the application of medicated gels, creams, or suppositories applied directly to the vagina. The antifungal drugs used to treat candida vulvovaginitis include oral fluconazole (Diflucan); butoconazole (Femstat); clotrimazole (Gynelotrimin, Mycelex); miconazole (Monistat); ticonazole (Vagistat), and nystatin (Mycostatin, Nilstat, Nystex). Most require only one or a few days of therapy to be effective. Women who have recurrent candidal infections may receive treatment for several weeks followed by some form of a long-term preventative treatment. Ketoconazole (Nizoral) may be used to treat recurrent vaginitis.

Normal allopathic treatment of atrophic vaginitis includes either estrogen creams or low-dosage estrogen tablets. Tibolone, a synthetic steroid, is also given for the treatment of atrophic vaginitis. It appears to prevent bone loss as well as improving the condition of the vaginal lining.

Expected results

Vaginitis is a disease with minor symptoms, and most women respond well to medications. It is believed, however, that certain vaginal infections left untreated can lead to more serious conditions, such as pelvic inflammatory disease; endometritis; postsurgical infections; and spread of the AIDS virus. Bacterial vaginosis has been identified as a risk factor in certain complications of pregnancy, including early pregnancy loss, preterm labor, and low birth weight infants. In addition, recurrent trichomonal infection appears to be associated with an increased risk of cervical **cancer**.

Prevention

Women may avoid vaginal infections by following these suggestions:

- Do not take over-the-counter yeast infection treatments unless the woman has been diagnosed with candidiasis before and recognizes the symptoms.
- Avoid douching because it may disturb the balance of organisms in the vagina and may spread them higher into the reproductive system.
- Do not use vaginal deodorants or sprays because they can also disturb the vagina's natural balance.
- Thoroughly dry oneself after bathing and remove a wet bathing suit promptly.
- Avoid wearing tight clothing and wear cotton underwear. Change underwear often and avoid pantyhose made from synthetic fibers.
- Clean diaphragms, cervical caps, and spermicide applicators after every use. Use condoms to avoid sexually transmitted diseases.
- After a bowel movement, wipe the area around the anus from front to back to avoid spreading intestinal bacteria into the vagina.

Resources

BOOKS

Rosenthal, M. Sara. *The Gynecological Sourcebook*. Los Angeles: Lowell House, 1994.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

PERIODICALS

Barenfanger, J., C. Drake, and C. Hanson. "Timing of Inoculation of the Pouch Makes No Difference in Increased Detection of *Trichomonas vaginalis* by the InPouch TV method." *Journal of Clinical Microbiology* 40 (April 2002): 1387-1389.

Cullins, Vanessa E., et al. "Treating Vaginitis." *Nurse Practitioner* 24 (October 1999): 46–65.

Davis, S. R. "The Effects of Tibolone on Mood and Libido." *Menopause* 9 (May-June 2002): 153-155.

Marrazzo, J. M., L. A. Koutsky, D. A. Eschenbach, et al. "Characterization of Vaginal Flora and Bacterial Vaginosis in Women Who Have Sex with Women." *Journal of Infectious Diseases* 185 (May 1, 2002): 1307-1313.

Pumpradit, W., and M. Augenbraun. "Bacterial Vaginosis Complicating Pregnancy and Gynecologic Surgery." *Current Infectious Diseases Report* 4 (April 2002): 141-143.

Sayed el-Ahl, S. A., H. S. el-Wakil, N. M. Kamel, and M. S. Mahmoud. "A Preliminary Study on the Relationship Between *Trichomonas vaginalis* and Cervical Cancer in Egyptian Women." *Journal of the Egyptian Society of Parasitology* 32 (April 2002): 167-178.

Sobel, Jack D. "Vaginitis." *New England Journal of Medicine* 337 (December 1997): 1896–1903.

Vermani, K., and S. Garg. "Herbal Medicines for Sexually Transmitted Diseases and AIDS." *Journal of Ethnopharmacology* 80 (April 2002): 49-66.

Williams, Pamela A. "Nonscientifically Validated Herbal Treatments for Vaginitis." *Nurse Practitioner* 24 (August 1999): 101–4.

ORGANIZATIONS

National Institutes of Health, Office of Research on Women's Health. http://www4.od.nih.gov/orwh.

National Vaginitis Association. 117 South Cook Street, Suite 315, Barrington, IL 60010. (800) 909-8745. VagAssoc@aol.com. http://www.vaginalinfection.com.

OTHER

JAMA Women's Health STD Information Center. http://www.ama-assn.org/special/std.

Kathy S. Stolley
Rebecca J. Frey, PhD

Valerian

Description

Valerian (*Valeriana officinalis*) is one of about 200 members of the Valerianaceae family. This plant is native to Europe and west Asia; it is naturalized throughout North America. A common name for this hardy perennial is garden heliotrope. Valerian has been valued for its soothing qualities for at least a millennium. The name valerian may have come from the Latin *valere* meaning "to be strong" or "to be in good health." Chaucer (c. 1343–1400) called the herb setewale. Other common names are all-heal, vandal root, and Capon's tail. The Greek doctor Galen called a particularly odorous species of valerian "phu," referring to the distinctively unpleasant smell of the dried root. The strong odor, which some say is reminiscent of dirty socks, appeals to earthworms, intoxicates cats, and attracts rats. According to legend, the Pied Piper of Hamelin, with the assistance of the odorous valerian root, lured the town's rats to the river to drown. Some Asian species of valerian have a more pleasant aroma and may have included spikenard (the biblical name for valerian), which was known as a perfume from the East.

In ancient times, valerian was believed to be under the influence of the god Mercury. The herb grows in lime-rich soil near streams or in damp, low meadows where it may reach a height of 5 ft (1.5 m). It is also found in drier environments at higher elevations, where it grows to just 2 ft (0.6 m). Roots harvested from the drier environment may be more medicinally potent. This variety is sometimes known as sylvestus.

Valerian's short vertical rhizome is dark yellow-brown in color and has round rootlets. These rootlets produce hollow, fluted stems with opposite leaves and a single leaflet at the tip and as many as eight to 10 pairs of toothed leaflets. The upper leaves are attached at their base and emerge from a white sheath along the stem. The stems remain erect and unbranched until the very top were the small, white flowers, tinged with pink, bloom in clusters in the middle of summer. Seeds are winged with tufts of white hair, and they scatter on the wind.

Valerian (Valeriana officinalis). *(© blickwinkel / Alamy)*

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

General use

As of 2007, researchers had identified some of the active ingredients in valerian that are responsible for its medicinal properties. A team of pharmacologists in Argentina reported that they had isolated two new flavonoids, 6-methylapigenin and **hesperidin**, as compounds with sedative and sleep-enhancing properties. In addition to these flavonoids, valerian contains volatile oil, valepotriates, glycosides, alkaloids, **choline**, tannins, and resins. Valerian's rhizome and root are the medicinal part of this herb. Fresh root will produce the highest quality of medicinal extract.

Valerian acts as a **pain** reliever, antispasmodic, sedative, carminative, and can help support nerve tissue. A British study published in 2002 suggests that valerian's effectiveness in relieving **stress** is related to its ability to lower the body's reactivity in stressful situations. Valerian can also help to promote menstrual flow. As a natural tranquilizer, valerian can soothe **anxiety**, nervous tension, **insomnia**, and **headache**. It acts on the peripheral nerves and relaxes both the smooth and skeletal muscle tissue to reduce tension. It also strengthens the heart and provides relief from menstrual cramps, stomach cramps, irritable bowel, and upset stomach caused by nerves. Valerian has also been shown to lower blood pressure. One study found that valerian tends to sedate the agitated person and stimulate the fatigued person, bringing about a balancing effect on the system. Externally, a lotion prepared with valerian extract will ease irritation from skin **rashes** and soothe swollen joints.

The plant has been used as a medicinal herb for more than a thousand years, especially for mild cases of insomnia. Research shows that proper use of valerian promotes sleep, reduces night awakenings, and increases dream recall in most people. Historically, valerian has been highly regarded as a tranquilizer that acts without narcotic effects. It is particularly popular with women; one herbal formula for menopausal women contains valerian along with **hops** and **black cohosh** as an active ingredient. The herb has also been used to treat illnesses as diverse as **epilepsy** and the plague. In the sixteenth century, valerian was reported to have cured a case of epilepsy. It was also used to treat hysteria, migraine, and vertigo. It has also been recommended for driving splinters or thorns from skin. Valerian was listed in the *United States Pharmacopoeia* from the early seventeenth century until the mid-twentieth century. During World War I, soldiers traumatized by the constant bombing and those suffering from what was then called shell shock were treated with valerian. The herb was listed in the *U.S. National Formulary* until 1950 and continued to be listed in the official pharmacopoeias of Germany, Belgium, and France.

A German study of more than 900 children suffering from pathological restlessness and/or difficulty falling asleep reported in 2006 that a twice-daily dose of 160 mg of valerian and 80 mg of **lemon balm** significantly decreased restlessness and difficulty falling asleep. The researchers suggested this combination may be a safer and more practical alternative to prescription medications.

Preparations

Valerian root should be harvested in the autumn of its second year. Valerian works well in combination with other tranquilizing herbs such as **passionflower** (*Passiflora incarnata*) to safely induce sleep or **skullcap** (*Scutellaria laterifolia*) to relieve nervous tension. The somewhat bitter, unpleasant taste of the tea may be masked by adding **peppermint** oil, or the user can take the herb in capsule form. Combinations contain equal parts of each herb. The herb may be drunk as an herbal tea, used as a tincture, or swallowed in capsule form one hour before bedtime.

It is important to note that there is no standard dosage for valerian and that the potency of valerian products can vary drastically from brand to brand. In 2006, ConsumerLab.com tested 16 brands of valerian products and found most had a lower potency than what was printed on the label and/or contained contaminants. One of the products was contaminated with lead, which can damage almost every system in the human body, and two others were contaminated with cadmium, a heavy metal that can cause kidney damage.

Precautions

Valerian should not be used in large doses or for an extended period. People should not take it continuously for more than two to three weeks. Users of valerian may become tolerant to its effects with prolonged use. Increasing the dose of the herb to achieve desired effects may result in negative side effects. Prolonged use, according to some research, could result in liver damage and central nervous system impairment.

Side effects

Large doses of valerian may occasionally cause headache, muscle spasm, heart palpitations, **dizziness**, gastric distress, sleeplessness, and confusion. Uninterrupted use may cause **depression**.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Carminative—A medication or preparation that prevents the formation of intestinal gas or allows it to be expelled.

Flavonoid—Any of a group of plant compounds with an aromatic nucleus, often found as a pigment. Two new flavonoids identified in valerian may be the source of its sedative effects.

Rhizome—A fleshy plant stem that grows horizontally under or along the ground; roots are sent out below this stem and leaves or shoots are sent out above it.

Interactions

Although valerian has been regarded as a relatively safe herb because few interactions with prescription medications have been reported, newer research indicates that it should be used cautiously following surgery. Like St. John's wort, valerian can interact with anesthetics and other medications given to patients after surgery. Because valerian has a mild sedative effect, it should not be taken together with alcoholic beverages, benzodiazepines, barbiturates, or antihistamines. Long-term safety studies of valerian have not been conducted as of early 2008.

Resources

BOOKS

Barnes, Joanne, et al. *Herbal Medicines (Includes CD-ROM)*, 3rd. ed. London: Pharmaceutical Press, 2007.

PDR for Nonprescription Drugs, Dietary Supplements, and Herbs. Stamford, CT: Thomson Healthcare, 2007.

Woolven, Linda, and Ted Snider. *Healthy Herbs: Everyday Guide to Medicinal Herbs and Their Use*. Markham, ON Canada: Fitzhenry & Whiteside, 2006.

PERIODICALS

Bone, Kerry. "Valerian: A Safe and Effective Herb for Sleep Problems." *Townsend Letter for Doctors and Patients* (April 2005): 44.

Brown, Donald. "Valerian and Lemon Balm Safely and Effectively Treat Restlessness and Dyssomnia in Children" *Original Internist* (December 2006): 205(2).

Castleman, Michael. "Rest Assured: Valerian, a Safe and Effective Herbal Sleep Aid, Will Help You Close the Door on Insomnia." *Natural Health* (March 2007): 98.

Sego, Sherril. "Valerian." *Clinical Advisor* (March 2007): 171(2).

ORGANIZATIONS

American Institute of Homeopathy, 801 N. Fairfax St., Suite 306, Alexandria, VA, 22314, (888) 445-9988, http://www.homeopathyusa.org.

Homeopathic Medical Council of Canada, 3910 Bathurst St., Suite 202, Toronto, ON, M3H 3N8, Canada, (416) 638-4622, http://www.hmcc.ca.

National Center for Alternative and Complementary Medicine, 9000 Rockville Pike, Bethesda, MD, 20892, (888) 644-6226, http://www.nccam.nih.gov.

U.S. Food and Drug Administration (FDA), 5600 Fishers Lane, Rockville, MD, 20857, (888) 463-6332, http://www.fda.gov.

Clare Hanrahan
Ken R. Wells

Vanadium

Description

Named after the Scandinavian goddess of youth and beauty, vanadium is a trace element that has gained attention in recent years as a possible aid in controlling diabetes. While such macrominerals as calcium, **magnesium**, and potassium have become household names because they make up over 98% of the body's mineral content, certain trace minerals are also considered essential in very tiny amounts to maintain health and ensure proper functioning of the body. They usually act as coenzymes, working as a team with proteins to facilitate important chemical reactions. Even without taking vanadium supplements, people have about 20–25 micrograms (mcg) of the mineral in their bodies, which is derived from an average balanced diet. Despite the fact that vanadium has been studied for over 40 years, it is still not known for certain if the mineral is critical for optimal health. Whether taking extra amounts of vanadium is therapeutic or harmful is even more controversial. Like **chromium**, another trace mineral, vanadium has become the focus of study as a possible aid in lowering blood sugar levels in people with diabetes. Vanadium has also been touted as a potential treatment for osteoporosis. Some athletes and weight lifters take it to build muscle or improve performance.

Studies in animals suggest that vanadium may be necessary for the formation of bones, teeth, and cartilage. The mineral may also play a role in growth and reproduction as well as affect the processing of cholesterol and insulin in the body. In one animal study, goat kids whose mothers received a diet deficient in

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

vanadium showed skeletal damage; they died within days of their birth. In studies of mice, vanadium has been shown to lower blood sugar and levels of low-density lipoprotein (LDL) cholesterol and triglyceride. It is not certain, however, that such study results as these confirm the nutritional importance of the mineral for human beings. The effects of a vanadium-free diet have not been studied in people. Even if vanadium supplements prove to be effective for certain purposes, such as helping to control diabetes, animal studies suggest that the high dosages of vanadium necessary to produce results may be harmful. High dosages are often necessary because vanadium is not well absorbed by the body. As of 2000, a significant amount of research is still required to determine if vanadium can in fact produce significant health benefits safely and effectively. The proper dosage of the mineral supplement has also yet to be determined.

General use

Vanadium has been investigated most often as a possible aid in controlling diabetes. Studies in animals with type 1 (insulin-dependent) and type 2 (non-insulin-dependent) diabetes indicate that vanadium can help to improve blood sugar levels. Studies using human subjects have produced encouraging if preliminary results. Vanadium is used by some athletes and weight lifters to build muscle despite the fact that it does not appear to be effective for this purpose. Moreover, the potential usefulness of vanadium in treating **osteoporosis** is considered highly speculative. All of the human studies discussed below were conducted in small numbers of people for short periods of time and involved relatively high dosages of the mineral.

Diabetes

Several studies conducted in people suggest that vanadium may help to control blood sugar levels in diabetics. The mineral appears to work by mimicking the effects of insulin or by increasing the body's sensitivity to the hormone. This mechanism could allow diabetics to effectively control their blood sugar while using lower dosages of insulin medication. In a placebo-controlled study published in 1996 in the medical journal *Metabolism*, eight people with type 2 diabetes received vanadium for one month. Researchers found that vanadium was moderately successful in lowering blood sugar levels and had few side effects. Six of the eight patients taking vanadium during the study experienced gastrointestinal side effects during the first week of treatment, but these disappeared with continued use. In another small study of vanadium involving people with type 2 diabetes, published in the *Journal of Clinical Investigation* in 1995, researchers from the Albert Einstein College of Medicine reported that three weeks of treatment with the mineral improved the body's sensitivity to insulin. The effects of vanadium in lowering blood sugar levels persisted for up to two weeks after the drug was discontinued. A study published in the journal *Diabetes* in 1996, which involved seven people with type 2 diabetes as well as six nondiabetics, reported that vanadium improved insulin sensitivity in the diabetic subjects. Interestingly, the mineral did not improve sensitivity in the subjects who did not have the disease.

Sports medicine

The use of vanadium by body builders appears to stem from a misunderstanding of the mineral's effects. Because insulin is a hormone that plays a role in increasing muscle mass, some weight lifters have taken vanadium in high dosages because they believe it will act like insulin and make them stronger. The problem is that vanadium does not appear to mimic insulin or increase its efficiency in healthy people, only in diabetics. For people considering vanadium as an aid in strengthening muscles, the scientific evidence is not very convincing. In one double-blind, placebo-controlled study published in the *International Journal of Sport Nutrition* in 1996, high dosages of vanadium were given to a few dozen weight trainers for 12 weeks. The bench press and leg extension weight-training exercises were used to measure results. Researchers found that there was no difference in body composition between those who took vanadium and those in the placebo group. Vanadium appeared to slightly enhance performance during the leg extension aspect of the study, but this advantage can be explained by other factors and cannot be attributed to the mineral itself with any certainty.

Osteoporosis

It is important not to confuse vanadium with **calcium**. Calcium is considered an essential building block of bone, and calcium supplements are often an important part of a bone-strengthening program in women with osteoporosis. Studies in mice indicating that vanadium is also deposited in bone have led to suggestions that the mineral may be effective as a potential treatment for osteoporosis. It is known, however, that minerals can be added to bones without actually making them stronger. There is no evidence that taking vanadium supplements can increase bone density in humans.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Diabetes—A disease in which the body either cannot produce adequate amounts of insulin (type 1) or properly metabolize the hormone (type 2).

Insulin—A hormone produced by the pancreas that helps to regulate blood sugar levels.

Osteoporosis—An age-related disease in which bones become fragile and prone to debilitating fractures.

Placebo—A sugar pill or inactive agent often used in the control group of a medical study.

Triglyceride—A term referring to the total amount of fat in the blood. Triglyceride should not be confused with cholesterol, which is technically classified as a steroid and not as a fat.

Preparations

The estimated dosage of vanadium, which is available as an over-the-counter dietary supplement, generally ranges from 10–30 mcg a day. It is important to remember, however, that safe and effective dosages for the mineral have not yet been established. Some practitioners of complementary medicine, such as Dr. Robert Atkins, have recommended dosages as high as 25–50 mg (milligrams, not micrograms) daily for people with diabetes. The long-term health risks associated with taking dosages in this range are unknown.

Even without taking supplements, most adults get anywhere between 10–60 mcg of vanadium through a normal diet. Some authorities believe it is safer for people to avoid vanadium supplements altogether and increase their intake of foods known to contain the mineral. These include meat, seafood, whole grains, vegetable oil, canned fruit juices, soy products, and such vegetables as green beans, corn, carrots, and cabbage. Alcoholic beverages such as wine and beer also contain vanadium. Overdosing on the vanadium contained in food is not considered a significant risk because the mineral is present only in very small amounts in plants and animals.

Precautions

It is important not to exceed the recommended intake of vanadium without medical supervision. Studies conducted in rats suggest that high dosages of vanadium can be harmful. This results from the fact that the mineral tends to build up in the body, reaching dangerously high levels when taken in excess. The reader should keep in mind that high dosages of vanadium have not yet been proven to have significant health benefits. The long-term health risks associated with taking vanadium supplements (in any dosage) are unknown.

Side effects

When taken in recommended dosages, vanadium has not been associated with any significant or bothersome side effects. At high dosages, vanadium has been known to cause stomach cramping and diarrhea as well as a green tongue.

Interactions

No drugs are known to interact adversely with vanadium. Smokers may absorb less of the mineral.

Resources

BOOKS

Atkins, Robert C. *Dr. Atkins' Vita-Nutrient Solution.* New York: Simon & Schuster, 1998.

Miller, Lucinda G., and Wallace J. Murray. *Herbal Medicinals: A Clinician's Guide.* New York: Pharmaceutical Products Press, 1998.

Sifton, David W. *PDR Family Guide to Natural Medicines and Healing Therapies.* New York: Three Rivers Press, 1999.

ORGANIZATIONS

Herb Research Foundation. 1007 Pearl Street, Suite 200. Boulder, CO 80302.

National Diabetes Information Clearinghouse. 1 Information Way. Bethesda, MD 20892-3560.

OTHER

Discovery Health. http://www.discoveryhealth.com.

National Institute of Diabetes and Digestive and Kidney Diseases. http://www.niddk.nih.gov.

Greg Annussek

Varicella *see* **Chickenpox**

Varicose veins

Definition

Varicose veins are dilated, tortuous, elongated superficial veins that appear most often in the legs.

Description

Varicose veins, also called varicosities, are seen most often in the legs, although they can be found in

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Varicose veins on back of legs around knee area.
(© worldthroughthelens-medical / Alamy)

other parts of the body. Most often, they appear as lumpy, winding vessels just below the surface of the skin. There are three types of veins: superficial veins that are just beneath the surface of the skin; deep veins that are large blood vessels found deep inside the muscles; and perforator veins that connect the superficial veins to the deep veins. The superficial veins are the blood vessels most often affected by this condition and are the veins that are visible when the varicose condition has developed.

The inside walls of veins have valves that serve as one-way flaps, which open and close in response to the blood flow. When the left ventricle of the heart pushes blood out into the aorta, it produces the high-pressure pulse of the heartbeat and pushes blood throughout the body. Between heartbeats, there is a period of low blood pressure. During this period, blood in the veins is affected by gravity and would flow downward if not for valves in the veins that prevent this from happening. Varicose veins start when one or more valves fail to close. The blood pressure in that section of vein increases, causing additional valves to fail, which allows blood to pool and stretch the veins, further weakening the walls of the veins. The walls of the affected veins lose their elasticity in response to increased blood pressure. As the vessels weaken, more and more valves are unable to close properly. The veins become larger and wider over time and begin to appear as lumpy, winding chains underneath the skin. Varicosities can also develop in the deep veins. Varicose veins in the superficial veins are called primary varicosities, and varicose veins in the deep veins are called secondary varicosities.

Causes and symptoms

Varicose veins have a number of different causes; lifestyle and hormonal factors play a role. Some families seem to have a higher incidence of varicose veins, indicating that there may be a genetic component to this disease. Varicose veins are progressive; as one section of a vein weakens, it causes increased pressure on adjacent sections of the vein. These sections often develop varicosities. Varicose veins can appear following pregnancy, thrombophlebitis (which is inflammation of a vein caused by a blood clot), congenital blood vessel weakness, or **obesity**, but they are not limited to these conditions.

Edema (swelling) of the surrounding tissue, ankles, and calves is not usually a complication of primary (superficial) varicose veins. When edema develops, it usually indicates that the deep veins may have varicosities or clots.

About half of U.S. adults have some type of vein problem. Varicose veins are a common problem; according to the U.S. National Heart, Lung, and Blood Institute, they affect 25 million Americans, mainly people aged 30 to 70 years old. The symptoms can include aching, **pain**, itchiness, or burning sensations, especially when standing. They also sometimes lead to serious health problems, including skin ulcers, blood clots, and severe **infections**. Some individuals who have chronically bad veins may experience a brownish discoloration of the skin or ulcers (open sores) near the ankles. A condition that is frequently associated with varicose veins is spider-burst veins. Spider-burst veins are very small veins that are enlarged. They may be caused by back-pressure from varicose veins but can be caused by other factors. They are frequently associated with **pregnancy** and hormonal factors may be associated with their development. They are primarily of cosmetic concern and do not present any medical concerns.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Diagnosis

Varicose veins can usually be seen. In cases in which varicose veins are suspected, a physician may frequently detect them by palpation (pressing with the fingers). The physician will examine the veins while the patient is first in a standing position and a second time while the patient is lying down. X-rays or ultrasound tests can detect varicose veins in the deep and perforator veins and also rule out **blood clots** in the deep veins. A handheld Doppler instrument is a commonly used diagnostic tool for evaluating the leg veins.

Treatment

There is no cure for varicose veins. Treatment falls into two classes: relief of symptoms and removal of the affected veins. Symptom relief includes such measures as wearing support or compression stockings, which compress the veins and hold them in place. This pressure keeps the veins from stretching and limits pain. Other measures include sitting down, using a footstool to support the feet when sitting, avoiding standing for long periods of time or at least shifting the body weight from one foot to the other, and raising the legs whenever possible. These measures work by reducing the blood pressure in leg veins. Prolonged standing allows the blood to collect under high pressure in the varicose veins. Crossing the legs and wearing tight clothing (particularly around the waist, groin, and legs) should also be avoided. **Exercise** such as walking, biking, and swimming, is beneficial. When the legs are active, the leg muscles help pump the blood in the veins. This activity limits the amount of blood that collects in the varicose veins and reduces some of the symptoms but does not cure the condition.

Herbal therapy is used to help treat varicose veins. **Essential oils** of cypress and geranium or extracts from **horse chestnut** seeds (*Aesculus hippocastanum*) are massaged into the legs, stroking upward toward the heart. The oils should not be applied to broken skin, and massage should not be performed directly on the varicose veins. Research has also shown that an oral dose of horse-chestnut seed extract is as effective in treating chronic venous insufficiency (a cause of varicose veins) as is compression. Individuals should be advised that horse chestnut flower, branch bark, and leaf are toxic and should be avoided.

Persons with varicose veins sometimes drink fresh fruit juices, particularly those of dark colored berries (cherries, blackberries, and blueberries) to help tone and strengthen the vein walls. They may also take the enzyme **bromelain**, found in pineapple juice, to aid in the prevention of blood clots associated with the pooling of blood in the legs.

Deep-breathing exercises performed while lying down with the legs elevated can assist gravity in circulating blood from the legs. The flow of fresh blood into the legs can help relieve pain.

Allopathic treatment

Surgery can remove varicose veins that are causing pain or are very unsightly and when hemorrhaging or recurrent thrombosis (blood clot) appear. Surgery involves making an incision through the skin at both ends of the section of vein being removed. A flexible wire is inserted through one end and extended to the other. The wire is then withdrawn, pulling the vein out with it. This is called stripping and is the most common method to remove superficial varicose veins. As long as the deeper veins are still functioning properly, a person can live without some of the superficial veins. Because of this, stripped varicose veins are not replaced. Recovery time varies, but most patients can expect to be back to their normal routines in about one to four weeks.

Other surgical methods are available. In one, known as ambulatory phlebectomy, a surgeon uses a tool to pull the troubling vein from the appendage through a small incision. Recovery time is typically less than a day.

Injection therapy is an alternate therapy used to seal varicose veins. This prevents blood from entering the sealed sections of the vein. The veins remain in the body but no longer carry blood. This procedure can be performed on an out-patient basis and does not require anesthesia. It is frequently used if people who have undergone surgery to remove the larger varicose veins proceed to develop further varicose veins. It is also used to seal spider-burst veins for people concerned about cosmetic appearance. Injection therapy is also called sclerotherapy. At one time, a method of injection therapy was used that did not have a good success rate. Veins did not seal properly and blood clots formed. Modern injection therapy is improved, and patients can typically expect a 50 to 90 percent improvement in the treated veins. Sometimes, the procedure must be repeated to achieve the desired results.

Additional allopathic treatments that are much less invasive than stripping the veins were also available as of 2008 and were used to treat most patients who have either spider veins or more severe varicose veins. In this method, the doctor inserts a small tube, or catheter, through a small puncture and directly into the affected vein, and uses it to direct a radiofrequency

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Aescinate—A chemical found in horse chestnut that is effective in relieving the tissue swelling associated with varicose veins.

Congenital—Existing at or before birth; a condition that developed while the fetus was in utero or as a consequence of the birth process.

Edema—Swelling caused by the collection of fluid in a tissue or body cavity.

Hemorrhage—Rapid high-volume loss of blood.

Palpation—A diagnostic technique in which the examiner gently presses, or palpates, a specific area of the patient's body. Palpation is used in the diagnosis of varicose veins.

Topical—A form of medication that is applied to the external surface of the affected part of the body.

burst or laser energy onto the wall of the vein, which causes the vein to contract and seal. Some patients find the heat caused by the procedure, which typically takes 15 minutes or so, to be uncomfortable. The patient can return to work or other normal activity immediately after the procedure. Typically, the patient returns at least once more for a follow-up treatment.

Expected results

Untreated varicose veins become increasingly large and more obvious with time. Surgical stripping of varicose veins is successful for most patients. Surgery does not decrease a person's tendency to develop varicose veins, but most patients do not develop new, large varicose veins following surgery. Varicose veins may develop in other locations after stripping.

Prevention

While genetic factors play a significant role in the development of varicose veins, swimming and other exercises to increase circulation in the legs help to prevent varicose veins. Preventive measures are especially important during pregnancy, when the additional weight of the fetus and placenta can exert pressure on the mother's legs and feet.

Resources

BOOKS

Bergan, John J., ed. *The Vein Book*. New York: Academic Press, 2006.

Craggs-Hinton, Christine. *Coping Successfully with Varicose Veins*. London: Sheldon Press, 2008.

PERIODICALS

Naoum, Joseph J., and Glenn C. Hunter. "Pathogenesis of Varicose Veins and Implications for Clinical Management." *Vascular* 15, no. 5 (2007): 242–249.

OTHER

"Varicose Veins and Spider Veins." U.S. Department of Health and Human Services, December 2005. http://www.4women.gov/faq/varicose.htm. (April 13, 2008).

"What Are Varicose Veins?" U.S. National Heart, Lung, and Blood Institute, National Institutes of Health. http://www.nhlbi.nih.gov/health/dci/Diseases/vv/vv_causes.html. (April 13, 2008).

Kathleen D. Wright
Rebecca J. Frey, PhD
Leslie Mertz, Ph.D.

Veganism

Definition

Veganism is a system of dietary and lifestyle practices that seeks to promote health and peace while reducing the suffering of both people and animals. Vegans (pronounced VEE-guns) are vegetarians who do not eat any foods derived from animal sources (e.g., eggs, dairy products, meat). Most vegans also do not use products that require the death or suffering of animals for their production, such as leather, fur, wool, down-filled garments and blankets, and certain cosmetics.

Origins

The word vegetarian was coined in England in 1847 by the founders of the Vegetarian Society of Great Britain. The word vegetarian has been used to describe people who do not eat meat, but do consume dairy products and eggs. The Vegan Society was founded in England in 1944 by Donald Watson and others who believed that vegetarians should strive to exist without eating or using any animal products at all. Watson stated that the crisis of World War II may have been a motivation behind his founding of the Vegan Society because he saw so much turmoil and suffering in the world around him. The Vegan founders believed that the first step to creating a better world is developing a diet that does not cause the death or suffering of any living beings. The term vegan is derived from the Latin word *vegetus*, which means

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

"full of life," which the founders hoped their system would be. Vegan also starts with the same three letters as vegetarian, and ends with the last two, as its founders believed they were starting with vegetarian ideas and taking them to their logical conclusion. The Vegan Society defines veganism as of 2007 as "a philosophy and way of living which seeks to exclude—as far as is possible and practical—all forms of exploitation of, and cruelty to, animals for food, clothing, or any other purpose." November 1, the anniversary of the foundation of the Vegan Society, is observed annually as World Vegan Day.

The American Vegan Society (AVS) was founded in 1960 by Jay Dinshah. The same year, the AVS began to publish a journal *Ahimsa*, which is a Sanskrit word that means "not causing harm" and "reverence for life." Dinshah and others conceived veganism to be a philosophy of living that has nonviolence, peace, harmony, honesty, service to the world, and knowledge as its goals. In 1974, the AVS became affiliated with the North American Vegetarian Society, which was formed to bring together all of the vegetarian groups in North America.

Since the 1970s, there has been a vast amount of research concerning **nutrition** and diet. It has been discovered that **diets** that emphasize meat and dairy products, such as the typical American diet, are high in **cholesterol** and saturated fat but low in fiber. These diets have been linked to many health problems, including **heart disease**, strokes, and diabetes, which together cause 68% of all the deaths in the United States. Thus, the interest in diets that reduce or eliminate foods that contribute to these conditions grew considerably.

The numbers of adult vegans in the United States and the United Kingdom vary somewhat depending on the particular population survey or poll. According to a 2002 poll conducted by *Time* magazine and CNN, 4 percent of American adults define themselves as vegetarians, and 5 percent of these vegetarians say that they are vegans, which comes to about 0.2 percent of the adult American population. Charles Stahler reported in an article in *Vegetarian Journal* in 2006, however, that a poll conducted by Harris Interactive indicated that vegans comprise about 1.3 percent of the adult population in the United States, or 2.4 million adults. He estimated that about half the vegetarians in Canada and the United States are vegans, which is considerably higher than the percentage given by *Time* in 2002. The American Dietetic Association (ADA) and the Dietitians of Canada (DC) accept Stahler's estimate that somewhere between 40 percent and 50 percent of vegetarians in North America are vegans. In the United Kingdom, the UK Food Standards Agency stated in 2002 that approximately 0.25 percent of British adults are vegans. *The Times* (London) reported in 2005, however, that there are at least 250,000 vegans in Britain, which represents about 0.4 percent of the adult population.

Benefits

The benefits of a vegan diet are similar to the health benefits of less strict vegetarian diets: lowered blood pressure, lower rates of cardiovascular disease and **stroke**, lower blood cholesterol levels, and lowered risks of colon and **prostate cancer** are associated with a vegan diet. Vegan diets are often recommended as dietary therapy for heart disease, high cholesterol, diabetes, strokes, **cancer**, **obesity**, arthritis, **allergies**, **asthma**, environmental illness, **hypertension**, **gout**, **gallstones**, **kidney stones**, ulcers, **colitis**, digestive disorders, **premenstrual syndrome**, **anxiety**, and **depression**. Most people lose weight on a vegan diet, especially in the first few months; moreover, weight loss is usually greater on a vegan diet than on a vegetarian diet that permits dairy products. In addition, most vegans have lower body mass indices (an important diagnostic criterion of obesity) than their meat-eating counterparts. Vegan diets also appear to lower the risk of developing type 2 (adult-onset) diabetes.

Description

Veganism can be better understood by considering the ethical, ecological, and health reasons that motivate vegans.

Ethical considerations

A vegan lifestyle seeks to promote awareness, compassion, and peace. Veganism is an ethical system as well as a diet. Ethics refers to rules of conduct or the moral ways in which people interact with others and the world. One poll in England showed that 83% of vegans listed ethical reasons as their main consideration in their practices. Vegans believe that health encompasses not only individuals' bodies, but also includes healthy relationships between people and their actions towards other living things, the earth, and the environment. Vegans believe that as long as animals are treated cruelly and are killed for meat, then the world's ethical and spiritual health will suffer. Vegans believe that people should become aware of how their food choices are creating suffering and affecting the health of the world as a whole. For instance, it has been estimated that the grain that goes to feed livestock in the United States could feed 1.3 billion people, which would relieve a large measure of the **pain** and suffering in the world.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Vegans claim that egg and dairy production may cause animals just as much suffering as killing them for meat because modern factory farming treats animals as unfeeling machines instead of as living beings. Eggs are produced by keeping chickens in small cages and in painful and unsanitary conditions. Vegans point out that dairy cattle are subjected to cruel treatment as well, being bred artificially and caged for much of their lives. Many dairy cattle are also injected with hormones that make them produce unnaturally high quantities of milk while weakening their immune systems and making them sick and unhealthy. Large amounts of antibiotics need to be used on weakened cows, which in turn affects the health of humans and creates diseases that are resistant to medicine. Dairy farming causes death to cows as well because undesirable or old cows are slaughtered for meat.

Other animal products are avoided by vegans as well. Leather, wool, down, and fur are not used because their production results in the suffering of animals. Some vegans do not use honey because they believe that the collection of honey is harmful to bees. Many vegans avoid using sugar because some sugar is made by using charcoal made from the bones of dead cattle. Vegans also do not use products that have been tested on animals, and many vegans are active in resisting the use of animals for dissection and medical experiments. Vegans are typically outspoken against hunting and the cruel treatment of animals in zoos or for entertainment (e.g., cockfighting, bullfighting, and rodeo).

Helping the Earth

Vegans believe that their dietary and lifestyle practices contribute to achieving a healthier world ecology. Vegans can cite many statistics that show that the American meat-centered diet is contributing to environmental problems. The main thrust of vegans' ecological position is that it takes many more resources to produce meat than it does to provide a grain-based diet, and people can be fed better with grain than with meat. For instance, it takes 10 lb (4.5 kg) of grain to make 1 lb (0.45 kg) of beef. On one acre of land, 20,000 lb (9,000 kg) of potatoes can be grown compared to 125 lb (57 kg) of beef during the same time. In the United States, livestock consumes six and a half times as much grain as the entire population. Different dietary habits applied in the United States could improve the whole world, vegans argue. Environmental problems caused by the inefficient production of livestock include topsoil loss, water shortages and contamination, deforestation, toxic waste, and air pollution.

Health considerations

People who eat vegetarian diets are at lower risk for many conditions, including heart disease, certain cancers, diabetes, obesity, high blood pressure, gallstones, and kidney stones. A vegan diet contains no cholesterol because cholesterol is found only in animal products. Diets high in cholesterol and saturated fat are responsible for heart disease. American men overall have a 50% risk of having a **heart attack**, whereas vegans have only a 4% risk. Vegans consume as much as four times the amount of fiber as the average person, and high fiber intake is believed to reduce the risk of heart disease, diabetes, cancer, and digestive tract problems. Vegan diets are also high in protective nutrients that are found in fruits and vegetables, such as **antioxidants**.

A vegan diet can also reduce exposure to chemicals that are found in meat and dairy products, such as pesticides and synthetic additives such as hormones. Chemicals tend to accumulate in the tissue of animals that are higher in the food chain, a process called bioaccumulation. By not eating animal products, vegans can avoid the exposure to these accumulated toxins, many of which are believed to influence the development of cancer. It is important, however, for vegans to eat organically produced vegetables and grains, as vegans who eat nonorganic food may get high doses of pesticides. One study showed that DDT, a cancer-causing pesticide, was present in significant levels in mother's milk for 99% of American women, but only 8% of vegetarian women had significant levels of the pesticide. The risks of women getting **breast cancer** and men contracting prostate cancer are nearly four times as high for frequent meat eaters as for those who eat meat sparingly or not at all. High consumption of dairy products has been linked to diabetes, **anemia**, **cataracts**, and other conditions.

Vegan diets may also be beneficial for those with allergic or autoimmune disorders such as asthma, allergies, and **rheumatoid arthritis**. Animal products cause allergic reactions in many people, and studies have shown that allergic responses and inflammation may be minimized by eliminating animal products from the diet. Furthermore, vegan diets are effective weight loss diets because the high levels of fiber and low levels of fat make it possible for dieters to eat until they are full and still take in lower calories than other diets.

Preparations

As with adoption of any vegetarian diet, people considering a vegan diet should consult a registered

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

dietitian as well as their primary physician before starting their new lifestyle. The reason for this precaution is the strictness of vegan regimens as well as the variations in height, weight, age, genetic inheritance, food preferences, level of activity, geographic location, and preexisting health problems among people. A nutritionist can also help design a diet that a vegan can enjoy eating and that can deliver adequate nourishment and other health benefits.

It is particularly important for pregnant or nursing women, or for families who wish to raise their children as vegans, to consult a dietitian as well as a pediatrician. There is some helpful and nutritionally sound information on the Vegetarian Resource Group Web site regarding meeting protein requirements during **pregnancy**, the protein needs of infants, and feeding vegan children.

Those considering veganism may wish to adopt the diet gradually to allow their bodies and lifestyles time to adjust to different eating habits. Some nutritionists have recommended transition diets to help people shift gradually from a meat-centered diet. Many Americans eat meat products at nearly every meal, and the first stage of a transition diet is to substitute just a few meals a week with wholly vegetarian foods. Then, particular meat products can be slowly reduced and eliminated from the diet and replaced with vegetarian foods. Red meat can be reduced and then eliminated, followed by poultry and fish. For vegans, the final step would be to substitute eggs and dairy products with other nutrient-rich foods. Individuals should be willing to experiment with transition diets and be patient when learning how combine veganism with such social activities as dining out.

Vegans should become informed on healthful dietary and nutrition practices as well. Sound nutritional guidelines include decreasing the intake of fat, increasing fiber, and emphasizing fresh fruits, vegetables, legumes, and whole grains in the diet while avoiding processed foods and sugar. Vegans can experiment with meat substitutes, foods that are high in protein and essential nutrients. Tofu and tempeh are soybean products that are high in protein, **calcium**, and other nutrients. There are veggie-burgers that can be grilled like hamburgers, and vegan substitutes for turkey and sausage with surprisingly realistic textures and taste. Furthermore, there are many vegan cookbooks available, as cooking without meat or dairy products can be challenging for some people.

Vegans should also become familiar with food labels and food additives because there are many additives derived from animal sources that are used in common foods and in such household items as soap. Vegans may also find social support at local health food stores or food cooperatives.

Precautions

The longstanding concern expressed by nutritionists and other health professionals about vegan diets is the risk of nutritional deficiencies, particularly for such important nutrients as protein, minerals (**iron**, calcium, and **zinc**), vitamins (**vitamin D**, **riboflavin**, **vitamin B_{12}**, and **vitamin A**), **iodine**, and n-3 fatty acids. The 2003 vegetarian food guide published by the ADA and DC recommends that vegans in all age groups take supplements of vitamin B_{12} and vitamin D, or use foods fortified with these nutrients. It is particularly important for pregnant women to maintain an adequate intake of vitamin B_{12}, as a lack of this vitamin can cause irreversible neurological damage in the fetus. In addition, some studies indicate that vegans are at increased risk of **osteoporosis** and bone **fractures** compared to either meat-eaters or less strict vegetarians because their average calcium intake is lower.

The ADA states that unsupplemented vegan diets do not provide vitamin B-12. Dairy products and eggs supply vitamin B-12; however, depending on food choices, some lacto-ovo-vegetarians may have inadequate intakes of these nutrients as well as vegans. The Institute of Medicine has recommended that all people over the age of 50, regardless of type of diet, take vitamin B-12 in the form found in supplements and fortified foods for optimal absorption. Vitamin B-12 is well-absorbed from fortified nondairy milks and from breakfast cereals, as well as from supplements. The symptoms of vitamin B_{12} deficiency include muscle twitching and irreversible nerve damage, weakness, numbness and tingling in the extremities, and a sore tongue.

Vitamin D supplements are recommended and may be particularly important for vegans living in northern latitudes or other situations in which they receive little sun because this vitamin is synthesized in the skin during exposure to sunlight. The ADA affirms that many breakfast cereals provide sufficient vitamin D.

In addition to nutritional concerns, there is some evidence that vegan diets may actually increase the risk of breast cancer in women, particularly in those who use large amounts of soy-based products. Soybeans contain phytoestrogens, or plant estrogens, which have been implicated in breast cancer. The plant estrogens in soy-based products may also

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

explain why committed vegans have a disproportionate number of female babies, and why these girls have a higher rate of precocious puberty than girls born to nonvegetarian mothers.

Vegans should be sure to get complete proteins in their diets. A complete protein contains all of the essential **amino acids**, which are essential because the body cannot make them. Meat and dairy products generally contain complete proteins, but most vegetarian foods such as grains and legumes contain incomplete proteins since they lack one or more of the essential amino acids. Vegans can easily obtain complete proteins by combining particular foods. For instance, beans are high in the amino acid **lysine** but low in tryptophan and **methionine**. Rice is low in lysine and high in tryptophan and methionine. Thus, a combination of rice and beans makes a complete protein. In general, combining legumes such as soy, lentils, beans, and peas with grains such as rice, wheat, or oats forms complete proteins. Nuts or peanut butter with grains such as whole wheat bread also forms complete proteins. Proteins do not necessarily need to be combined in the same meal, but should generally be combined over a period of a few days.

Riboflavin (vitamin B_2) is also generally found in high amounts in animal sources, so vegans should be aware of this fact and take a supplement if necessary. Vegetable sources of riboflavin include **brewer's yeast**, almonds, mushrooms, whole grains, soybeans, and green leafy vegetables.

Calcium can be obtained from enriched tofu, seeds, nuts, legumes, and dark green vegetables, including broccoli, kale, spinach, and collard greens. Iron is found in raisins, figs, legumes, tofu, whole grains (particularly whole wheat), potatoes, and dark green leafy vegetables, and by cooking with iron skillets. Iron is absorbed more efficiently by the body when iron-containing foods are eaten with foods that contain **vitamin C**, such as fruits, tomatoes, and green vegetables. Zinc is abundant in nuts, pumpkin seeds, legumes, whole grains, and tofu. Getting enough omega-3 **essential fatty acids** may be an issue for vegans. These are found in walnuts, canola oil, and such supplements as **flaxseed** oil. Vegans should consider purchasing organically grown food when possible to avoid exposure to pesticides and contribute to sound agricultural practices.

KEY TERMS

Bioaccumulation—The process in which toxic chemicals collect in the tissues of humans and other animals toward the top of the food chain.

Cholesterol—A steroid fat found in animal foods that is also produced in the body from saturated fat for several important functions. Excess cholesterol intake is linked to many diseases.

Complex carbohydrates—Carbohydrates that are broken down by the body into simple sugars for energy. They are found in grains, fruits, and vegetables. Complex carbohydrates are generally recommended by nutritionists over refined sugar and honey because they are a better source of energy and often contain fiber and nutrients as well.

Legume—A group of plant foods that includes beans, peas, and lentils. Legumes are high in protein, fiber, and other nutrients.

Organic food—Food grown without the use of synthetic pesticides and fertilizers.

Saturated fat—A fat that is usually solid at room temperature. Saturated fats are found mainly in meat and dairy products but also in such vegetable sources as some nuts, seeds, and avocados.

Unsaturated fat—A type of fat found in plant foods that is typically liquid at room temperature. Unsaturated fats can be monounsaturated or polyunsaturated, depending on their chemical structure. They are the most frequently recommended dietary fats.

Research and general acceptance

Studies of the role of vegetarian diets of all types in preventing disease go back to the 1960s, when the National Institutes of Health (NIH) and the National Cancer Institute (NCI) began to study members of the Seventh-Day Adventist Church. Adventists, who advocate **vegetarianism** and general wellness, eat a diet that is low-fat and protein-rich. NIH findings indicate that Adventist men live on average seven years longer than men in the general population, and Adventist women eight years longer than their non-Adventist counterparts.

Studies of vegans as a subpopulation of vegetarians are fewer than those of less strict vegetarians; however, the emphasis in medical research shifted in the early 2000s from concern about nutritional deficiencies in people following these diets to the role of plant-based diets in preventing or treating chronic diseases. In this regard vegan diets and lifestyles appear to be beneficial. One 2005 study of 64 overweight postmenopausal women found that a vegan diet brought about a significant weight loss and improved insulin sensitivity (an important factor in

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

evaluating the patient's risk of developing type 2 diabetes), despite the lack of prescribed limits on food portion size or calorie intake. Two studies published in 2004 comparing a group of overweight adults on a vegan diet with a control group following a National Cholesterol Education Program Step II Diet showed that the low-fat vegan diet was as acceptable to the subjects as the Step II diet and was equally effective in promoting weight loss. Those on the vegan diet, however, told the researchers that the vegan diet was harder to prepare than their normal meals.

In terms of general acceptance, vegan diets differ from less strict vegetarian regimens in being more difficult to follow and in causing more social friction with nonvegans. Some vegetarians who are not vegans have noted that evaluating foods, clothing, cosmetics, and other items as not containing animal products often requires considerable knowledge of production methods as well as the derivation of the ingredients. In addition, such items as vitamins, dietary supplements, and prescription medications may be processed using non-vegan ingredients (gelatin for capsules, glycerin in some liquid medications), and these are not always listed on the packaging. The complications of replacing animal-derived ingredients in some recipes and the difficulty of finding restaurants offering dishes acceptable to vegans also contribute to a widespread perception of veganism as a potentially problematic lifestyle.

Resources

BOOKS

Stuart, Tristan. *The Bloodless Revolution: A Cultural History of Vegetarianism from 1600 to Modern Times*. New York: Norton, 2006.

PERIODICALS

American Dietetic Association and Dietitians of Canada. "Position of the American Dietetic Association and Dietitians of Canada: Vegetarian Diets." *Canadian Journal of Dietetic Practice and Research* 64 (Summer 2003): 62–81.

Barnard, N. D., A. R. Scialli, G. Turner-McGrievy, and A. J. Lanou. "Acceptability of a Low-Fat Vegan Diet Compares Favorably to a Step II Diet in a Randomized, Controlled Trial." *Journal of Cardiopulmonary Rehabilitation* 24 (July/August 2004): 229–235.

Goff, L. M., J. D. Bell, P. W. So, et al. "Veganism and Its Relationship with Insulin Resistance and Intramyocellular Liquid." *European Journal of Clinical Nutrition* 59 (February 2005): 291–298.

Key, T. J., P. N. Appleby, and M. S. Rosell. "Health Effects of Vegetarian and Vegan Diets." *Proceedings of the Nutrition Society* 65 (February 2006): 35–41.

Larsson, C. L., U. Ronnlund, G. Johansson, and L. Dahlgren. "Veganism as Status Passage: The Process of Becoming a Vegan among Youths in Sweden." *Appetite* 41 (August 2003): 61–67.

Smith, A. M. "Veganism and Osteoporosis: A Review of the Literature." *International Journal of Nursing Practice* 12 (October 2006): 302–306.

Stahler, Charles. "How Many Adults Are Vegetarian?" *Vegetarian Journal* no. 4 (December 20, 2006). http://www.vrg.org/journal/vj2006issue4/vj2006issue4poll.htm (April 23, 2008).

Turner-McGrievy, G. M., N. D. Barnard, A. R. Scialli, and A. J. Lanou. "Effects of a Low-Fat Vegan Diet and a Step II diet on Macro- and Micronutrient Intakes in Overweight Postmenopausal Women." *Nutrition* 20 (September 2004): 738–746.

ORGANIZATIONS

American Dietetic Association (ADA), 120 South Riverside Plaza, Suite 2000, Chicago, IL, 60606-6995, (800) 877-1600, http://www.eatright.org.

American Vegan Society (AVS), 56 Dinshah Lane, PO Box 369, Malaga, NJ, 08328, (856) 694-2887, http://www.americanvegan.org/index.htm.

Seventh-Day Adventist Dietetic Association (SDADA). (SDADA is an official affiliate of the ADA.), 9355 Telfer Run, Orlando, FL, 32817, http://www. sdada.org.

Vegan Outreach, 211 Indian Drive, Pittsburgh, PA, 15238, (412) 968-0268, http://www.veganoutreach.org/.

Douglas Dupler
Helen Davidson

Vegetarianism

Definition

Vegetarianism refers to voluntary abstinence from eating meat. Vegetarians refrain from eating meat for various reasons, including religious, health, and ethical ones. Lacto-ovo vegetarians supplement their diet with dairy (lactose) products and eggs (ovo). Vegans (pronounced vee-guns) do not eat any animal-derived products at all.

Origins

The term vegetarian was coined in 1847, when the Vegetarian Society of the United Kingdom—the oldest organized vegetarian group in the world—was founded in Ramsgate, Kent. The Society, which has included George Bernard Shaw and Mahatma Gandhi among its members, chose the word *vegetarian* for its name because it is derived from the Latin *vegetus*, which means "lively" or "vigorous," and because it suggests the English word *vegetable*.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Vegetarian diet

Servings	Foods	Calcium-rich foods
Fats (2 servings)	1 tsp. oil, mayonnaise, soft margarine	
Fruits (2 servings)	1 med. piece of fruit ½ cooked or cut-up fruit ½ cup fruit juice ¼ cup dried fruit	½ cup fortified fruit juice
Vegetables (4 servings)	½ cup cooked vegetables 1 cup of raw vegetables ½ cup vegetable juice	1 cup cooked or 2 cups raw bok choy, broccoli, collards, Chinese cabbage, kale, mustard greens or okra ½ cup fortified tomato juice
Legumes, nuts, and other protein-rich foods (5 servings)	½ cup cooked beans, peas or lentils ½ cup tofu or tempeh 2 tbsp. nut or seed butter 1 egg	½ cup cow's milk or yogurt or fortified soy milk ¾ oz. cheese ½ cup tempeh or calcium-set tofu ½ cup cooked soybeans ¼ cup soynuts
Grains (6 servings)	1 slice bread ½ cup cooked grain or cereal 1 oz. ready to eat cereal	1 oz. calcium-fortified cereal

(Illustration by GGS Information Services. Cengage Learning, Gale)

Archaeological findings indicate that prehistoric humans were not vegetarians but obtained about a third of their daily calories from meat or other animal products. The structure of the human digestive tract suggests that humans evolved as omnivores (animals that feed on both plant and animal substances), as human intestines are relatively short in comparison with the lengthy intestines found in herbivores (plant-eating animals). Like the stomachs of other carnivores (meat-eating animals) and omnivores, the human stomach secretes pepsin, an enzyme necessary for digesting the proteins found in meat rather than plant matter. The human mouth contains pointed teeth (canines and incisors) adapted for tearing meat as well as teeth with flat crowns (molars) for chewing plant matter. In addition to the anatomical evidence, anthropologists have not discovered any primitive societies in the past or present whose members maintained good health and consumed a purely vegetarian diet. All contemporary indigenous groups that are healthy include fish or dairy products in their diet, and most eat meat, even if only in small amounts or on rare occasions.

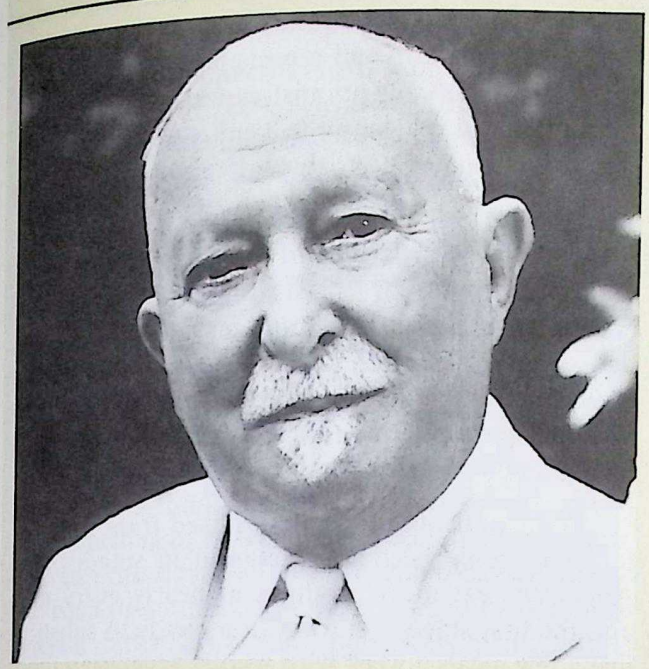
Although early humans were omnivores, vegetarianism has been around as long as people have created **diets**. Some of the world's oldest cultures advocate a vegetarian diet for health and religious purposes. In India, millions of Hindus are vegetarians because of their religious beliefs. One of the ancient mythological works of Hinduism, the *Mahabharata*, states that, "Those who desire to possess good memory, beauty, long life with perfect health, and physical, moral and spiritual strength, should abstain from animal foods." The **yoga** system of living and health is vegetarian, because its dietary practices are based on the belief that healthy food contains *prana*. Prana is the universal life energy, which yoga experts believe is abundant in fresh fruits, grains, nuts and vegetables, but absent in meat because meat has been killed. Yogis also believe that spiritual health in influenced by the practice of *ahimsa*, or not harming living beings. The principle of *ahimsa* (non-violence) appears in the Upanishads (Vedic literature) from c. 600–300 B.C. The taking of animal life or human life under any circumstances is sinful and results in rebirth as a lower organism. It became a fundamental element of Jainism, another religion of India. Some Buddhists in Japan and China are also vegetarian because of spiritual beliefs. In the Christian tradition, the Trappist Monks of the Catholic Church are vegetarian, and some vegetarians argue that there is evidence that Jesus and his early followers were vegetarian. Other traditional cultures, such as those in the Middle East and the Mediterranean regions, have evolved diets that frequently consist of vegetarian foods. The **Mediterranean diet**, which a Harvard study declared to be one of the world's healthiest, is primarily, although not strictly, vegetarian.

The list of famous vegetarians forms an illustrious group. The ancient Greek philosophers, including Socrates, Plato, and Pythagoras, advocated vegetarianism. In modern times, the word to describe someone who likes to feast on food and wine is "epicure," but it is little known that Epicurus, the ancient philosopher, was himself a diligent vegetarian. Other famous

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

JOHN HARVEY KELLOGG (1852–1943)



(AP/Wide World Photos. Reproduced by permission.)

John Harvey Kellogg is known as the father of modern breakfast cereal. He was born in Tyrone Township, Michigan, on February 26, 1852, into a Seventh Day Adventist family. At age 12, he became an apprentice at the Review and Herald Press, a publishing company run by the church. He attended school in Battle Creek, Michigan. He attended Bellevue Hospital Medical College in New York where he received his medical degree in 1875. In 1876, at the age of 24, Kellogg became an abdominal surgeon and superintendent of the Western Health Reform Institute, which he renamed the Battle Creek Sanitarium. There, he began applying his theories about natural living to his medical practice. Himself a vegetarian, he first advocated a diet high in whole grains, fruits, nuts, and legumes. He later included all types of vegetables in the diet. His controversial health regimen included morning calisthenics, open-air sleeping, cleansing enemas, chewing food hundreds of times before swallowing, and drinking plenty of water.

In the 1890s, Kellogg established a laboratory at the sanitarium to develop more nutritious foods. His brother, Will Keith Kellogg, joined in his research. In 1895 they developed a breakfast cereal of wheat flakes called Granose. The cereal quickly grew in popularity and was soon sold by mail order. This was followed by rice flakes and corn flakes. The brothers established the Sanitas Food Company. But philosophical differences led them to split into two companies. Will founded the W. K. Kellogg Company, which retained the rights to the cereal products. John set up the Battle Creek Food Company, which produced coffee substitutes and soymilk. John Kellogg also edited *Good Health Magazine*, which promoted vegetarianism, for 60 years. In 1904, he published a book, *The Miracle of Life*. He continued to promote his version of healthy living and radical techniques until his death in 1943.

vegetarians include Leonardo da Vinci, Sir Isaac Newton, Leo Tolstoy, Ralph Waldo Emerson, and Henry Thoreau. This century's celebrated vegetarians include Gandhi, the physician Albert Schweitzer, writer George Bernard Shaw, musician Paul McCartney, and champion triathlete Dave Scott. Albert Einstein, although not a strict vegetarian himself, stated that a vegetarian diet would be an evolutionary step for the human race.

Vegetarianism in America received a lot of interest during the last half of the nineteenth century and the beginning of the twentieth century, during periods of experimentation with diets and health practices. Vegetarianism has also been a religious practice for some Americans, including the Seventh-day Adventists, whose lacto-ovo vegetarian diets have been studied for their health benefits. Vegetarianism has been steadily gaining acceptance as an alternative to the meat-and-potatoes bias of the traditional American diet. In 1992, *Vegetarian Times* magazine performed a poll that showed that 13 million Americans, or 5% of the population, identified themselves as vegetarians.

Several factors contribute to the interest in vegetarianism in America. Outbreaks of **food poisoning** from meat products, as well as increased concern over the additives in meat such as hormones and antibiotics, have led some people and professionals to question meat's safety. There is also an increased awareness of the questionable treatment of farm animals in factory farming. But the growing health consciousness of Americans is a major reason for the surge in interest in vegetarianism. **Nutrition** experts have built up convincing evidence that there are major problems with the conventional American diet, which is centered around meat products that are high in **cholesterol** and saturated fat and low in fiber. **Heart disease**, **cancer**, and diabetes, which cause 68% of all deaths in America, are all believed to be influenced by this diet. Nutritionists have repeatedly shown in studies that a healthy diet consists of plenty of fresh

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

vegetables and fruits, complex carbohydrates such as whole grains, and foods that are high in fiber and low in cholesterol and saturated fat. Vegetarianism, a diet that fulfills all these criteria, has become part of many healthy lifestyles. In alternative medicine, vegetarianism is a cornerstone dietary therapy, used in **Ayurvedic medicine**, **detoxification** treatments, macrobiotics, the **Ornish diet** for heart disease, and in therapies for many chronic conditions.

Benefits

Vegetarianism is recommended as a dietary therapy for a variety of conditions, including heart disease, high cholesterol, type 2 diabetes, and **stroke**. Vegetarianism is a major dietary therapy in the alternative treatment of cancer. Other conditions treated with a dietary therapy of vegetarianism include **obesity**, **osteoporosis**, arthritis, **allergies**, **asthma**, environmental illness, **hypertension**, **gout**, **gallstones**, **hemorrhoids**, **kidney stones**, ulcers, **colitis**, **premenstrual syndrome**, **anxiety**, and **depression**. Vegetarians often report higher energy levels, better digestion, and mental clarity. Vegetarianism is an economical and easily implemented preventative practice as well.

The long-term NIH study of Seventh-day Adventists began to report in the 1970s and 1980s that lowered blood pressure, lower rates of cardiovascular disease and stroke, lower blood cholesterol levels, and lowered risks of colon and **prostate cancer** are associated with a vegetarian diet. In particular, SDAs were only half as likely to develop type 2 (adult-onset) diabetes as were nonvegetarian Caucasians. Although it is possible to gain weight on a vegetarian diet, most people lose weight, especially in the first few months; and most vegetarians have lower body mass indices (an important diagnostic criterion for obesity) than their meat-eating counterparts.

Several studies carried out in Germany and Austria reported in 2006 that vegetarian diets appear to be effective in lowering the risk of **rheumatoid arthritis**, osteoporosis, kidney disease, gallstones, **diverticulitis**, and **dementia** as well as heart attacks, stroke, and diabetes.

In addition to lowering the risk of chronic degenerative diseases, vegetarian diets have also been shown to be useful in treating **constipation** in adults and children, and **dysmenorrhea** (painful menstrual periods) in women of childbearing age.

Preparations

The ADA strongly recommends that people consult a registered dietitian as well as their primary physician before starting a vegetarian diet. The reason for this precaution is the variety of vegetarian regimens as well as the variations in height, weight, age, genetic inheritance, food preferences, level of activity, geographic location, and preexisting health problems among people. A nutritionist can also help design a diet that a new vegetarian will enjoy eating as well as getting adequate nourishment and other health benefits.

Some people, particularly those with such severe or chronic conditions as heart disease or cancer, may be advised by a health practitioner to become vegetarian suddenly. For most people, nutritionists recommend that a vegetarian diet be adopted gradually, to allow people's bodies and lifestyles time to adjust to new eating habits and food intake.

Some nutritionists have designed transition diets to help people become vegetarian in stages. Many Americans eat meat products at nearly every meal, and the first stage of a transition diet is to substitute just a few meals a week with wholly vegetarian foods. Then, particular meat products can be slowly reduced and eliminated from the diet and replaced with vegetarian foods. Red meat can be reduced and then eliminated, followed by pork, poultry, and fish. For those wishing to become strict vegetarians or vegans, the final step would be to substitute eggs and dairy products with other nutrient-rich foods. Individuals should be willing to experiment with transition diets, and should have patience when learning how to combine vegetarianism with such social activities as dining out. Fortunately, the number of restaurants that offer vegetarian dishes, or even all-vegetarian menus, is growing in the United States, particularly along the West Coast.

The transition to vegetarianism can be smoother for those who make informed choices with dietary practices. Sound nutritional guidelines include decreasing the intake of fat, increasing fiber, and emphasizing fresh fruits, vegetables, legumes, and whole grains in the diet while avoiding processed foods and sugar. Everyone can improve their health by becoming familiar with recommended dietary and nutritional practices, such as reading labels and understanding such basic nutritional concepts as daily requirements for calories, protein, fat, and nutrients. Would-be vegetarians can experiment with meat substitutes, foods that are high in protein and essential nutrients. Thanks to the growing interest in vegetarianism, many meat substitutes are now readily available. Tofu and tempeh are products made from soybeans that are high in protein, **calcium**, and other nutrients. There are "veggie-burgers" that can be grilled

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

like hamburgers, and vegetarian substitutes for turkey and sausage with surprisingly authentic textures and taste. There are many vegetarian cookbooks on the market as well.

A set of guidelines for North American vegetarian diets, updated for 2004, is available from the American Dietetic Association and the Dietitians of Canada. The new guidelines are intended to promote variety within vegetarian diets and to meet the needs of different stages in the life cycle as well as incorporate the most recent findings of medical research.

One objection that some people make to the practice of vegetarianism is the unpleasant taste or smell of many vegetables. A number of phytonutrients have a bitter, astringent, or acrid taste that they impart to products made from vegetables that contain them. Some experts think that people tend to reject such strong-smelling or bitter-tasting vegetables as turnips, cabbage, brussels sprouts, or broccoli because humans have been programmed in the course of evolution to associate bitter taste with poisonous plants. It is increasingly recognized that the major barrier to dietary change for the sake of health is taste. One recommendation for improving the taste appeal of vegetarian diets is more frequent use of spices. In addition to pleasing the human palate, spices derived from plants have been shown to have chemoprotective effects, boosting the immune system, reducing inflammation, and fighting harmful bacteria and viruses.

Precautions

In general, a well-planned vegetarian diet is healthful and safe; in the summer of 2003, a position paper endorsed by the American Dietetic Association and the Dietitians of Canada referred to vegetarian diets as "healthful, nutritionally adequate, and [able to] provide health benefits in the prevention and treatment of certain diseases." However, vegetarians, and particularly vegans who eat no animal products, should be aware of particular nutrients that may be lacking in non-animal diets. These are **amino acids**, **vitamin B_{12}**, **vitamin D**, calcium, **iron**, **zinc**, and **essential fatty acids**. Furthermore, pregnant women, growing children, and those with health conditions may have higher requirements for these nutrients.

Vegetarians should be aware of getting *complete protein* in their diets. A complete protein contains all of the essential amino acids, which are the building blocks for protein essential to the diet because the body cannot make them. Meat and dairy products generally contain complete proteins, but most vegetarian foods such as grains and legumes contain incomplete proteins, lacking one or more of the essential amino acids. However, vegetarians can easily overcome this by combining particular foods in order to create complete proteins. For instance, beans are high in the amino acid **lysine** but low in tryptophan and **methionine**, but rice is low in lysine and high in tryptophan and methionine. Thus, combining rice and beans makes a complete protein. In general, combining legumes such as soy, lentils, beans, and peas with grains like rice, wheat, or oats forms complete proteins. Eating dairy products or nuts with grains also makes proteins complete. Oatmeal with milk on it is complete, as is peanut butter on whole wheat bread. Proteins do not necessarily need to be combined in the same meal, but generally within four hours.

Getting enough vitamin B_{12} may be an issue for some vegetarians, particularly vegans, because meat and dairy products are the main sources of this vitamin. Vitamin supplements that contain vitamin B_{12} are recommended, particularly for older vegetarians. **Spirulina**, a nutritional supplement made from algae, is also a vegetarian source, as are fortified soy products and nutritional yeast.

Vitamin D can be obtained by vitamins, fortified foods, and sunshine. Calcium can be obtained in enriched tofu, seeds, nuts, legumes, dairy products, and dark green vegetables including broccoli, kale, spinach, and collard greens. Iron is found in raisins, figs, legumes, tofu, whole grains (particularly whole wheat), potatoes, and dark green leafy vegetables. Iron is absorbed more efficiently by the body when iron-containing foods are eaten with foods that contain **vitamin C**, such as fruits, tomatoes, and green vegetables. Zinc is abundant in nuts, pumpkin seeds, legumes, whole grains, and tofu. For vegetarians who don't eat fish, getting enough omega-3 essential fatty acids may be an issue, and supplements such as **flaxseed** oil should be considered, as well as eating walnuts and canola oil.

Vegetarians do not necessarily have healthier diets. Some studies have shown that some vegetarians consume large amounts of cholesterol and saturated fat. Eggs and dairy products contain cholesterol and saturated fat, while nuts, oils, and avocados are vegetable sources of saturated fat. To reap the full benefits of a vegetarian diet, vegetarians should be conscious of cholesterol and saturated fat intake. Vegetarians may also consider buying organic foods, which are grown without the use of synthetic chemicals, as another health precaution. Lastly, consuming large quantities of vegetables without other carbohydrates and sources of protein can produce its own kind of dietary imbalance. Cases have been reported of

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

carotenemia, which is a yellowish discoloration of the skin caused by high levels of carotene, a fat-soluble plant pigment turned into **vitamin A** in the liver. In one instance, the patient developed blood carotene levels nine times higher than normal values after putting himself on a diet that involved eating 2–3 pounds of vegetables every day. While carotenemia resulting from high vegetable intake has no known lasting consequences to health, it is still an indication of the importance of balance in vegetarian diets.

In addition to nutritional concerns, there is some evidence that vegetarian diets may actually increase the risk of **breast cancer** in women, particularly in those who use large amounts of soy-based products. Soybeans contain phytoestrogens, or plant estrogens, which have been implicated in breast cancer. The plant estrogens in soy-based products may also explain why vegetarians have a disproportionate number of female babies, and why these girls have a higher rate of precocious puberty than girls born to nonvegetarian mothers.

Research and general acceptance

Once considered an eccentricity, vegetarianism is widely accepted by the general public in developed countries as a legitimate dietary option in the early 2000s. The ADA and DC state that about 2.5 percent of adults (defined as people over 18 years of age) in the United States and 4 percent of Canadian adults follow vegetarian diets. The Vegetarian Resource Group (VRG), a nonprofit research organization, conducted a poll in 2006. It estimated that 2.3 percent of adults in the United States—4.7 million people—are vegetarians, with a third to a half of this group being vegans. In addition, the VRG notes that 30 to 40 percent of American adults choose vegetarian dishes over meat dishes at least some of the time. Other interesting details from the 2006 poll:

- People between 45 and 54 years of age are almost twice as likely to be vegetarians as people between 18 and 24 years of age.
- The Northeast has the highest percentage of vegetarians in the general population, with the South having the lowest.
- People who have graduated from college are twice as likely to be vegetarians as those who did not complete high school.
- Hispanics are more likely to be vegetarians than either Caucasians or African Americans.
- There is no correlation between household income and a vegetarian lifestyle as of the early 2000s; people at all income levels seem to be equally likely to become vegetarians.

A vegetarian diet has many well-documented health benefits. It has been shown that vegetarians have a higher life expectancy, as much as several years, than those who eat a meat-centered diet. The U.S. Food and Drug Administration (FDA) has stated that data have shown vegetarians to have a strong or significant probability against contracting obesity, heart disease, **lung cancer**, colon cancer, **alcoholism**, hypertension, diabetes, gallstones, gout, kidney stones, and ulcers. However, the FDA also points out that vegetarians tend to have healthy lifestyle habits, so other factors may contribute to their increased health besides diet alone.

Vegetarianism has been associated for many decades with abstinence from other habit-forming substances, including alcohol and tobacco. There is evidence, however, that this long-standing connection between vegetarianism and other health-conscious practices is breaking down. A recent study of Scandinavian teenage vegetarians found that there was no difference between their lifestyles and those of meat-eating peers with regard to **smoking**, alcohol consumption, **exercise**, or weight. Partly because of this trend, physicians in family practice as well as those in sports medicine are increasingly recommending nutritional counseling for vegetarian teens.

A vegetarian diet, as prescribed by Dr. Dean Ornish, has been shown to improve heart disease and reverse the effects of **atherosclerosis**, or hardening of the arteries. It should be noted that Dr. Ornish's diet was used in conjunction with exercise, **stress** reduction, and other holistic methods. The Ornish diet is lacto-ovo vegetarian, because it allows the use of egg whites and non-fat dairy products.

Vegetarians have a resource of statistics in their favor when it comes to presenting persuasive arguments in favor of their eating habits. Vegetarians claim that a vegetarian diet is a major step in improving the health of citizens and the environment. Americans eat over 200 lbs (91 kg) of meat per person per year. The incidence of heart disease, cancer, diabetes, and other diseases has increased along with a dramatic increase in meat consumption during the past century. Many statistics show significantly smaller risks for vegetarians contracting certain conditions. The risks of women getting breast cancer and men contracting prostrate cancer are nearly four times as high for frequent meat eaters as for those who eat meat sparingly or not at all. For heart attacks, American men have a 50% risk of having one, but the risk drops down to 15% for lacto-ovo vegetarians and to only 4% for vegans. For cancer, studies of populations

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

around the world have implied that plant-based diets have lower associated risks for certain types of cancer.

Vegetarians claim other reasons for adopting a meat-free diet. One major concern is the amount of pesticides and synthetic additives such as hormones that show up in meat products. Chemicals tend to accumulate in the tissue of animals that are higher in the food chain, a process called *bioaccumulation*. Vegetarians, by not eating meat, can avoid the exposure to these accumulated toxins, many of which are known to influence the development of cancer. One study showed that DDT, a cancer-causing pesticide, was present in significant levels in mother's milk for 99% of American women, but only 8% of vegetarian women had significant levels of the pesticide. Women who eat meat had 35 times higher levels of particular pesticides than vegetarian women. The synthetic hormones and antibiotics added to American cattle has led some European countries to ban American beef altogether. The widespread use of antibiotics in livestock has made many infectious agents more resistant to them, making some diseases harder to treat.

Vegetarians resort to ethical and environmental arguments as well when supporting their food choices. Much of U.S. agriculture is dedicated to producing meat, which is an expensive and resource-depleting practice. It has been estimated that 1.3 billion people could be fed with the grain that America uses to feed livestock, and starvation is a major problem in world health. Producing meat places a heavy burden on natural resources, as compared to growing grain and vegetables. One acre of land can grow approximately 40,000 lbs (18,000 kg) of potatoes or 250 lbs (113 kg) of beef, and it takes 50,000 gal (200,000 l) of water to produce 1 lb (0.45 kg) of California beef but only 25 gal (100 l) of water to produce 1 lb (0.45 kg) of wheat. Half of all water used in America is for livestock production. Vegetarians argue that the American consumption of beef may also be contributing to global warming, by the large amounts of fossil fuels used in its production. The South American rainforest is being cleared to support American's beef consumption, as the United States yearly imports 300 million lbs (136 million kg) of meat from Central and South America. The production of meat has been estimated as causing up to 85% of the loss of topsoil of America's farmlands. A German researcher in the field of nutrition ecology has summarized the environmental benefits of vegetarian diets: "Research shows that vegetarian diets are well suited to protect the environment, to reduce pollution, and to minimize global climate changes."

Most opposition to vegetarianism in developed countries is interpersonal rather than scientific or political, as some vegetarians develop a sense of moral or spiritual superiority to nonvegetarians and make themselves socially unpopular by criticizing or lecturing others for continuing to eat meat. NAVS advises new vegetarians, "Be cheerful about your choices [but] remember to let people come to their own dietary conclusions."

One area of concern about vegetarianism is in veterinary medicine—namely, the trend among some pet owners to put dogs and cats on vegetarian diets, often with homemade foods. Cats in particular are at risk of malnutrition and eventual blindness on a vegetarian or vegan diet because they are obligate carnivores (must have meat in the diet). Their bodies cannot form taurine (an amino acid), **thiamine**, retinol (a form of vitamin A essential to healthy eye tissue),

KEY TERMS

Cholesterol—A steroid fat found in animal foods that is also produced in the body from saturated fat for several important functions. Excess cholesterol intake is linked to many diseases.

Complex carbohydrates—Complex carbohydrates are broken down by the body into simple sugars for energy, are found in grains, fruits and vegetables. They are generally recommended in the diet over refined sugar and honey, because they are a more steady source of energy and often contain fiber and nutrients as well.

Legume—Group of plant foods including beans, peas, and lentils, which are high in protein, fiber, and other nutrients.

Organic food—Food grown without the use of synthetic pesticides and fertilizers.

Saturated fat—Fat that is usually solid at room temperature, found mainly in meat and dairy products but also in vegetable sources such as some nuts, seeds, and avocados.

Tempeh—A fermented cake of soybeans and other grains; it is a staple food in Indonesia.

Tofu—A soft cheeselike food made from curdled soybean milk.

Unsaturated fat—Fat found in plant foods that is typically liquid (oil) at room temperature. They can be monounsaturated or polyunsaturated, depending on the chemical structure. Unsaturated fats are the most recommended dietary fats.

Vegan—A vegetarian who omits all animal products from the diet.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

and vitamin B_{12}—all micronutrients found primarily in meat. The Vegetarian Society (UK) has an information sheet warning against putting cats on a vegetarian diet, while the American Veterinary Medical Association (AVMA) strongly urges vegetarian pet owners to consult their veterinarian before offering either dogs or cats vegetarian pet food.

Resources

BOOKS

Akers, Keith. *A Vegetarian Sourcebook*. New York: Putnam, 1993.

Null, Gary. *The Vegetarian Handbook*. New York: St. Martins, 1987.

Pelletier, Kenneth R., MD. *The Best Alternative Medicine*, Part I: Food for Thought. New York: Simon & Schuster, 2002.

Stuart, Tristan. *The Bloodless Revolution: A Cultural History of Vegetarianism from 1600 to Modern Times*. New York: W. W. Norton & Co., 2006.

PERIODICALS

American Dietetic Association; Dietitians of Canada. "Position of the American Dietetic Association and Dietitians of Canada: Vegetarian Diets." *Canadian Journal of Dietetic Practice and Research* 64 (Summer 2003): 62–81.

Berger, Joanne M. "Curiously Yellow." *Family Practice News* 32 (September 1, 2002): 47.

Fornell-Barratt, Anne, and Adam Drewnowski. "The Taste of Health: Nature's Bitter Gifts." *Nutrition Today* 37 (July-August 2002): 144-150.

Greydanus, D. E., and D. R. Patel. "Sports Doping in the Adolescent Athlete: The Hope, Hype, and Hyperbole." *Pediatric Clinics of North America* 49 (August 2002): 829-855.

Jenkins, D. J., C. W. Kendall, A. Marchie, et al. "Type 2 Diabetes and the Vegetarian Diet." *American Journal of Clinical Nutrition* 78 (September 2003) (3 Suppl): 610S–616S.

Key, T. J., P. N. Appleby, and M. S. Rosell. "Health Effects of Vegetarian and Vegan Diets." *Proceedings of the Nutrition Society* 65 (February 2006): 35–41.

Kwok, E., G. Cheng, J. Woo, et al. "Independent Effect of Vitamin B_{12} Deficiency on Hematological Status in Older Chinese Vegetarian Women." *American Journal of Hematology* 70 (July 2002): 186-190.

Lampe, J. W. "Spicing Up a Vegetarian Diet: Chemopreventive Effects of Phytochemicals." *American Journal of Clinical Nutrition* 78 (September 2003) (Suppl 3): 579S–583S.

Larsson, C. L., K. S. Klock, A. Nordrehaug-Astrom, et al. "Lifestyle-Related Characteristics of Young Low-Meat Consumers and Omnivores in Sweden and Norway." *Journal of Adolescent Health* 31 (August 2002): 190-198.

Leitzmann, C. "Nutrition Ecology: The Contribution of Vegetarian Diets." *American Journal of Clinical Nutrition* 78 (September 2003) (Suppl 3): 657S–659S.

Messina, V., V. Melina, and A. R. Mangels. "A New Food Guide for North American Vegetarians." *Canadian Journal of Dietetic Practice and Research* 64 (Summer 2003): 82–86.

OTHER

Vegetarian Journal. Vegetarian Resource Group (VRG). PO Box 1463, Baltimore, MD 21203.

Vegetarian Times. 4 High Ridge Park, Stamford, CT 06905. (877) 321-1796.

Vegetarian Nutrition and Health Letter. 1707 Nichol Hall, Loma Linda, CA 92350. (888) 558-8703.

ORGANIZATIONS

American Dietetic Association, 216 West Jackson Blvd., Chicago, IL, 60606, (312) 899-0040, http://www.eatright.org.

Dietitians of Canada/Les diététistes du Canada, 480 University Avenue, Suite 604, TorontoON, M5G IV2, (416) 596-0857, http://www.dietitians.ca/.

North American Vegetarian Society (NAVS), PO Box 72, Dolgeville, NY, 13329, (518) 568-7970

Douglas Dupler
Rebecca J. Frey, PhD
Helen Davidson

Venom immunotherapy

Definition

Venom immunotherapy is the process of injecting venom to treat various conditions. The most common form of venom immunization is bee venom therapy (BVT), with honeybee venom or stingers used to treat conditions. BVT is one form of **apitherapy**, which is the therapeutic use of products made by honeybees. Other products used in apitherapy include **bee pollen** and **royal jelly**.

Origins

Apitherapy is thousands of years old. In ancient Egypt, venom from bee **stings** was used to treat arthritis. Hippocrates, the Greek physician known as the "father of medicine," used bee stings for treatments several centuries before the birth of Christ. Descriptions of apitherapy are found in 2,000-year-old Chinese writings, the Bible, and the Koran.

Bee venom therapy has remained part of folk medicine throughout the centuries. The modern study of apitherapy is said to have started in 1888, with Austrian physician Phillip Terc's research titled "Report about a Peculiar Connection between the Beestings and Rheumatism."

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Anaphylaxis—An allergic hypersensitivity reaction to such allergens as bee stings. Anaphylaxis can result in shock, difficulty in breathing, and even death.

Apitherapy—A form of alternative therapy based on the use of honey and other bee products.

Benefits

Although a bee sting is painful for most people, the sting can be fatal to some. Approximately 15% of the population is allergic to the sting of such insects as bees and wasps. Allergic reactions range from mild to life-threatening.

In mainstream allopathic medicine, honeybee venom is used to treat people who are allergic to bee stings. A small amount of venom is injected during desensitization treatments to help patients develop a tolerance to stings.

Honeybee venom immunotherapy is used to treat many other conditions in alternative medicine. BVT is regarded as an effective treatment for arthritis, **multiple sclerosis** (MS), acute and chronic injuries, migraine headaches, **gout**, acute **sore throat**, **psoriasis**, **irritable bowel syndrome**, Bell's palsy, **depression**, **AIDS**, scar tissue, and **asthma**.

Bee venom is also said to relieve **premenstrual syndrome** (PMS) and conditions related to **menopause**. However, BVT is most commonly used as an anti-inflammatory remedy for arthritis and MS. Advocates maintain that it will provide relief for **rheumatoid arthritis** when injected into the joints. Bee venom is also used to lessen the **pain** and swelling of **osteoarthritis** as well as such inflammations and injuries as **tendinitis** and **bursitis**. Furthermore, people diagnosed with MS say that BVT significantly reduces symptoms that include **muscle spasms** and tiredness.

Description

Bee venom therapy involves the injection of venom by a needle, insertion of the stinger, or stinging by live bees. While a licensed physician must give injections, other treatments can be done by a bee venom therapist, a beekeeper, the patient, or a friend or relative.

The cost and length of treatment depends on the condition, as well as when and where a person is treated. If a physician provides the treatment, the doctor's appointment may be covered by health insurance. Rates for other therapies are set by beekeepers and bee venom therapists. Information about these providers can be found through organizations such as the American Apitherapy Society. The society's resources include an extensive web site with information about BVT. Apitherapy resources include books and videos about home treatment. Live bees can be ordered by mail; one business in June 2000 charged $50 for four boxes, each containing about 60 bees.

When live bees are utilized, tweezers are used to remove one bee from a container such as a box, jar, or hive. The bee is held over the area to be treated until it stings the patient. The stinger is removed after three to five minutes.

Patients receive an average of two to five stings per session. The number of stings and the number of sessions varies with the condition treated. Tendinitis might require two to three stings per session for two to five sessions. Arthritis is sometimes treated with several stings per session at two to three weekly sessions. MS may take months to treat. While BVT advocates say MS patients are more energetic after several sessions, they maintain that treatment should be done two to three times weekly for six months.

Preparations

Before beginning venom immunotherapy, a person should be tested for **allergies**. If a relative or friend plans to help with the therapy, that person should be tested, too. Bee venom may cause a severe allergic reaction called anaphylaxis. The symptoms of anaphylaxis include shock, respiratory distress, and in some cases, death. Even if tests indicate that a person isn't allergic to bee stings, it is important to obtain an emergency bee-sting allergy kit before beginning treatment.

Precautions

People should check with their doctor or practitioner before beginning bee venom immunotherapy. The therapy is not recommended for pregnant women, diabetics, people with heart conditions, **tuberculosis**, or **infections**.

An allergy test is a must before starting bee venom therapy. A person who is allergic to bee stings should not start venom treatment. In some cases, scarring and infections have resulted when the stinger was left in too long.

Side effects

If a person undergoing bee venom therapy has an allergic reaction, emergency treatment should be started.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Such symptoms as minor **itching** and swelling, however, are not causes for alarm. They are signs of the healing process.

Research and general acceptance

During the late 1990s, researchers in countries including the United States, France, and Russia began researching the effect of bee venom immunotherapy on humans. Before that, research with such animals as mice indicated that venom could be beneficial for treating inflammatory conditions.

Anecdotal reports by people with MS indicated that venom immunotherapy is effective. Those supporting the study of this therapy include the Multiple Sclerosis Association of America and the American Apitherapy Society. As of 2008, it remains to be seen whether bee venom immunotherapy is effective.

Training and certification

Although a doctor can administer bee venom therapy, no specific training or certification is required to perform the therapy. Training in handling bees is recommended. Organizations such as the American Apitherapy Society can provide information about training and therapy providers.

Resources

BOOKS

The Editors of Time-Life Books. *The Alternative Advisor*. Alexandria, VA: Time-Life Books, 1997.

Gottlieb, Bill. *New Choices in Natural Healing*. Emmaus, PA: Rodale Press, Inc., 1995.

Rosenfeld, Isadore. *Dr. Rosenfeld's Guide to Alternative Medicine*. New York: Random House, 1996.

ORGANIZATIONS

American Apitherapy Society (AAS). 5370 Carmel Road. Hillsboro, OH 45133. (937) 466-9214. Fax: (937) 466-9215. http://www.beesting.com

Arthritis Foundation. 1330 W. Peachtree St. Atlanta, GA 30309. http://www.arthritis.org.

Multiple Sclerosis Association of America. 706 Haddonfield Road. Cherry Hill, NJ 08002. (800) 833-4672.

Liz Swain

Vertigo *see* **Dizziness**

Vision disorders *see* **Hyperopia; Macular degeneration; Myopia; Night blindness; Retinal detachment**

Vision therapy *see* **Bates method**

Visualization *see* **Guided imagery**

Vitamin A

Description

Vitamin A is one of four fat-soluble vitamins necessary for good health. It serves an important role as an antioxidant by helping to prevent free radicals from causing cellular damage. Adequate levels are important for good eyesight, and poor night vision may be one of the first symptoms of a deficiency. It is also necessary for proper function of the immune, skeletal, respiratory, reproductive, and integumentary (skin) systems.

General use

An adequate level of vitamin A unquestionably contributes to good health. It is essential for the proper function of the retina, where it can act to prevent **night blindness**, as well as lower the odds of getting age-related **macular degeneration** (AMD), which is the most common cause of blindness in the elderly. There is also evidence that good levels of vitamin A in the form of **carotenoids** may decrease the risk of certain cancers, heart attacks, and strokes. The immune system is also strengthened. It is unclear, however, if supplemental forms of vitamin A have the same benefit as consuming the nutrient in natural foods in the case of a person without deficiency. Taking high levels of vitamin A in any supplemental form is not advisable without the counsel of a healthcare professional.

Preparations

Natural sources

There are two basic forms of vitamin A. Retinoids, the active types, are contained in animal sources, including meat, whole milk, and eggs. Liver is particularly rich in vitamin A, since it is one of the storage sites for excess. Precursor forms of the vitamin (carotenoids) are found in orange and leafy green produce such as sweet potatoes, carrots, collard greens, spinach, winter squash, kale, and turnip greens. Very fresh foods have the highest levels, followed by frozen foods. Typically, canned produce has little vitamin A. Preparing vegetables by steaming, baking, or grilling helps them to release the carotenes they contain. Alpha and **beta carotene**, as well as some of the other lesser-known carotenoids, can be converted to vitamin A in the small intestine. This is done by the body on an as-needed basis, so there is no risk of overdose as there is with the active form.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Recommended dietary allowance of vitamin A

Age	IU/day	RAE/day
Children 0-6 mos.	1,330 IU	400 RAE
Children 7-12 mos.	1,670 IU	500 RAE
Children 1-3 yrs.	1,000 IU	300 RAE
Children 4-8 yrs.	1,330 IU	400 RAE
Children 9-13 yrs.	2,000 IU	600 RAE
Boys 14-18 yrs.	3,000 IU	900 RAE
Girls 14-18 yrs.	2,310 IU	700 RAE
Men ≥ 19 yrs.	3,000 IU	900 RAE
Women ≥ 19 yrs.	2,310 IU	700 RAE
Pregnant women ≥ 19 yrs.	2,500 IU	750 RAE
Breastfeeding women ≥ 19 yrs.	4,300 IU	1,300 RAE

Foods that contain vitamin A (retinol)	IU
Beef liver, cooked, 3 oz.	27,185 IU
Chicken liver, cooked, 3 oz.	12,325 IU
Skim milk, vitamin A fortified, 1 cup	500 IU
Butter, 1 tbsp.	325 IU
Egg, 1 whole	300 IU
Whole milk cheddar cheese, 1 oz.	280 IU
Whole milk, 1 cup	250 IU

Foods that contain vitamin A (provitamin A corotenoid)	IU
Spinach, cooked, 1/2 cup	11,460 IU
Kale, cooked, 1/2 cup	9,560 IU
Carrot, raw, unpeeled, 1 whole (7.5")	8,670 IU
Cantaloupe, 1 cup	5,410 IU
Spinach, raw, 1 cup	2,800 IU
Papaya, 1 cup	1,530 IU
Carrot, raw, peeled, sliced, 1/2 cup	1,285 IU
Mango, 1 cup	1,260 IU
Tomato juice, 6 oz.	820 IU
Cereal, vitamin A fortified, 1 serving	500-700 IU

AI = Adequate Intake
IU = International Unit
mg = milligram

(Illustration by GGS Information Services. Cengage Learning, Gale)

Supplemental sources

Supplements may contain either the active or precursor forms of vitamin A. The active form may be more desirable for those who may have some difficulty in converting the carotenoids into the active vitamin. This is more often true in those over age 55 or who have a condition that impairs the absorption of fat. There is a water-soluble form of the vitamin, retinyl palmitate, which may be better utilized in the latter case. Carotenes are also available either as oil-based or natural water-based formulas. Be sure to store both away from light and heat, which will destroy them.

Units

There are several units that can express the amount of vitamin A activity in a product. Many supplements are still labeled with the old International Unit (IU), although the more current and most accurate unit is the Retinol Equivalent (RE). The new measurement distinguishes between the differences in absorption of retinol and beta carotene. One RE is equal to one microgram (μg) of retinol, or six μg of beta carotene.

Dose limits

Adults should take no more than 25,000 IU (5,000 RE) per day of vitamin A in its active form, except in the case of women who are pregnant or may become pregnant. The latter group should not exceed 10,000 IU (2,000 RE) per day in order to avoid potential toxic effects to the fetus. The best way to get vitamins is in the natural food form, as the complexities are not always either known or reproducible in a supplement. A diet rich in foods containing carotenoids is optimal, but in the event of nutritional deficiencies, supplements may be needed. Mixed carotenoids are preferable to either large doses of vitamin A or pure beta carotene supplements to avoid toxicity and maximize healthful benefits. Some of the minor carotenoids appear to have beneficial effects that are still being explored. A good mixture will contain alpha and beta carotene, as well as **lycopene** and xanthophylls. Eating foods high in many carotenoids may confer some benefits—such as a lower risk of **cancer**, heart attacks, and strokes—which a supplement may not.

Deficiency

Levels of vitamin A low enough to cause symptomatic deficiency are uncommon in people of normal health in industrialized nations. Symptoms of deficiency may include, but are not limited to, loss of appetite, poor immune function causing frequent **infections** (especially respiratory), **hair loss**, **rashes**, dry skin and eyes, visual difficulties including night blindness, poor growth, and **fatigue**. Generally symptoms are not manifested unless the deficiency has existed for a period of months. Deficiencies are more likely in people who are malnourished, including alcoholics, the chronically ill, and those with impaired fat absorption. Another group at increased risk of vitamin A deficiency are persons with type 1 diabetes whose disease is poorly controlled. People with normal

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Antioxidant—Any substance, such as vitamin A, that blocks the destructive action of free radicals.

Carotenoids—Any of a group of over 600 orange or red substances which are found primarily in vegetables, many of which are vitamin A precursors.

Free radical—Highly reactive atoms that are very reactive as a result of having one or more unpaired electrons. They form through exposure to smoke and other environmental pollutants, as well as radiation and other sources. They have great potential to cause cellular damage, and may even be a factor in aging.

Retinoids—Any of the group of substances which comprise active vitamin A, including retinaldehyde, retinol, and retinoic acid.

health and nutritional status have a considerable vitamin A reserve.

In countries where nutritional status tends to be poor and deficiency is more common, vitamin A has been found to reduce the mortality rate of children suffering from a number of different viral infections.

Experts in plant genetics have been working on a strain of rice that contains beta carotene, hoping to help people in developing countries avoid the risk of vitamin A deficiency. Known as Golden Rice, the new strain is being sent to research institutes in developing countries for further study.

Risk factors for deficiency

Taking the RDA level of a nutrient will prevent a deficiency in most people, but under certain circumstances, an individual may require higher doses of vitamin A. Those who consume alcoholic beverages may be more prone to vitamin A deficiency. People taking some medications, including birth control pills, methotrexate, cholestyramine, colestipol, and drugs that act to sequester bile will also need larger amounts. Those who are malnourished, chronically ill, or recovering from surgery or other injuries may also benefit from a higher than average dose. Patients undergoing treatments for cancer, including radiation and chemotherapy, typically have compromised immune systems that may be boosted by judicious supplementation with vitamin A. Other conditions that may impair vitamin A balance include chronic **diarrhea**, cystic fibrosis, and kidney or liver disease. Diabetics are often deficient in vitamin A, but may also be more susceptible to toxicity. Any supplementation for these conditions should be discussed with a healthcare provider. Supplements are best taken in the form of carotenoids to avoid any potential for toxicity. There is not an established RDA for beta carotene. Recommendations for how much to take vary between 6 and 30 mg a day, but the middle range—around 15 mg—is a reasonable average.

Precautions

Overdose can occur when taking megadoses of the active form of this vitamin. Amounts above what is being utilized by the body accumulate in the liver and fatty tissues. Symptoms may include dry lips and skin, bone and joint **pain**, liver and spleen enlargement, diarrhea, **vomiting**, headaches, blurry or double vision, confusion, irritability, fatigue, and bulging fontanel (soft spot on the head) in infants; these are most often reversible, but a doctor should be contacted if a known overdose occurs. Very high levels of vitamin A may also create deficiencies of vitamins C, E, and K. Symptoms will generally appear within six hours following an acute overdose, and take a few weeks to resolve after ceasing the supplement. Children are more sensitive to high levels of vitamin A than adults are, so instructions on products designed for children should be followed with particular care. Vitamin supplements should always be kept out of reach of children.

It is especially important to avoid overdoses of vitamin A during **pregnancy**, as it may cause miscarriage or fetal malformations. Using supplements that provide carotenoids will avoid the potential of overdose. Those with kidney disease are also at higher risk for toxicity due to either vitamin A or beta carotene, and should not take these supplements without professional healthcare advice.

There is some evidence that taking beta carotene supplements puts smokers at a higher risk of lung cancers. The CARET (Beta Carotene and Retinol Efficacy Trial) study is one that demonstrated this effect. Clarification through more study is needed, as evidence also exists showing that beta carotene, along with other **antioxidants**, can be a factor in cancer prevention. For example, a team of American researchers has recently reviewed evidence that vitamin A protects against **bladder cancer**, and a group in Germany is testing an aerosol form of vitamin A to prevent **lung cancer**. Some of the lesser-known carotenoids may be key factors in the relationship between vitamin intake and cancer. Whole sources of vitamin A are better obtained from foods than from supplements. Smokers

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

should consult with a healthcare provider before taking supplemental beta carotene.

Side effects

Very high levels of carotenoids (carotenemia) may cause an orange discoloration of the skin, which is harmless and transient.

Interactions

Vitamin A supplements should not be taken in conjunction with any retinoid medications, including isotretinoin (Accutane), a drug used to treat **acne**. There is a higher risk of toxicity.

A very low fat diet or use of fat substitutes impairs absorption of all the fat-soluble vitamins, including A. Mineral oil and aluminum-containing antacids may also inhibit absorption, as do the cholesterol-lowering drugs cholestyramine and colestipol. Vitamin A reserves of the body are depleted by a number of substances, including alcohol, barbiturates, **caffeine**, cortisone, tobacco, and very high levels of **vitamin E**. Overuse of alcohol and vitamin A together may increase the possibility of liver damage.

Taking appropriate doses of **vitamin C**, vitamin E, **zinc**, and **selenium** optimizes absorption and use of vitamin A and carotenoids. As vitamin A is fat-soluble, a small amount of dietary fat is also helpful.

Studies of both children and pregnant women with **iron** deficiency **anemia** show that this condition is better treated with a combination of iron supplements and vitamin A than with iron alone.

Resources

BOOKS

Bratman, Steven, and David Kroll. *Natural Health Bible.* Prima Publishing, 1999.

Feinstein, Alice. *Prevention's Healing with Vitamins.* Rodale Press, 1996.

Griffith, H. Winter. *Vitamins, Herbs, Minerals & Supplements: The Complete Guide.* Fisher Books, 1998.

Jellin, Jeff, Forrest Batz, and Kathy Hitchens. *Pharmacist's letter/Prescriber's Letter Natural Medicines Comprehensive Database.* Therapeutic Research Faculty, 1999.

PERIODICALS

Baena, R. M., C. Campoy, R. Bayes, et al. "Vitamin A, Retinol-Binding Protein and Lipids in Type 1 Diabetes Mellitus." *European Journal of Clinical Nutrition* 56 (January 2002): 44–50.

Beyer, P., S. Al-Babili, X. Ye, et al. "Golden Rice: Introducing the Beta-Carotene Biosynthesis Pathway Into Rice Endosperm by Genetic Engineering to Defeat Vitamin A Deficiency." *Journal of Nutrition* 132 (March 2002): 506S–510S.

Kamat, A. M., and D. L. Lamm. "Chemoprevention of Bladder Cancer." *Urology Clinics of North America* 29 (February 2002): 157–168.

Kohlhaufl, M., K. Haussinger, F. Stanzel, et al. "Inhalation of Aerosolized Vitamin A: Reversibility of Metaplasia and Dysplasia of Human Respiratory Epithelia— A Prospective Pilot Study." *European Journal of Medical Research* 7 (February 21, 2002): 72–78.

Miksad, R., V. de Ledinghen, C. McDougall, et al. "Hepatic Hydrothorax Associated with Vitamin A Toxicity." *Journal of Clinical Gastroenterology* 34 (March 2002): 275–279.

Van den Berg, H., M. van der Gaag, and H. Hendriks. "Influence of Lifestyle on Vitamin Bioavailability." *International Journal of Vitamin and Nutrition Research* 72 (January 2002): 53–59.

Yeum, K. J., and R. M. Russell. "Carotenoid Bioavailability and Bioconversion." *Annual Review of Nutrition* 22 (2002): 483–504.

Judith Turner
Rebecca J. Frey, PhD

Vitamin B_1 *see* **Thiamine**

Vitamin B_{12}

Description

Cobalamin, also known as B_{12}, is a member of the water-soluble family of B vitamins. It is a key factor in the body's proper use of **iron** and formation of red blood cells. The nervous system also relies on an adequate supply of cobalamin to function appropriately, as it is an essential component in the creation and maintenance of the myelin sheath that lines nerve cells. Other roles of cobalamin include working with **pyridoxine** (vitamin B_6) and **folic acid** to reduce harmful homocysteine levels, participating in the metabolization of food, and keeping the immune system operating smoothly.

General use

Very small amounts of cobalamin are needed to maintain good health. The RDA value is 0.3 micrograms (mcg) for infants under 6 months, 0.5 mcg for those 6 months to 1 year old, 0.7 mcg for children 1-3 years old, 1.0 mcg for children 4-6 years old, 1.4 mcg for children 7-10 years old, and (2.0 mcg) for those 11 years of age and older. Requirements are slightly higher for pregnant (2.2 mcg) and lactating (2.6 mcg) women.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Recommended dietary allowance of vitamin B_{12}

Age	ng/day or mcg/day
Children 0-6 mos.	400 ng (AI)
Children 7-12 mos.	500 ng (AI)
Children 1-3 yrs.	900 ng
Children 4-8 yrs.	1.2 mcg
Children 9-13 yrs.	1.8 mcg
Children 14-18 yrs.	2.4 mcg
Adults ≥ 19yrs.	2.4 mcg
Pregnant women	2.6 mcg
Breastfeeding women	2.8 mcg

Foods that contain vitamin B_{12}	mcg
Mollusks or clams, cooked, 3 oz.	84
Calf's liver, cooked, 4 oz.	41
Cereal, 100% fortified, 3/4 cup	6.0
Salmon, baked or broiled, 4 oz.	3.3
Beef, top sirloin, broiled, 3 oz.	2.4
Cheeseburger, fast food, double patty	1.9
Shrimp, steamed or broiled, 4 oz.	1.7
Taco, fast food, 1 large	1.6
Cereal, 25% fortified	1.5
Tuna, white, canned in water, 3 oz.	1.0
Milk, 1 cup	0.9
Ham, canned or roasted, 3 oz.	0.6
Chicken breast, roasted, 1/2 breast	0.3
Egg, 1 whole, cooked	0.3

AI = Adequate Intake
mcg = microgram
ng = nanogram

(Illustration by GGS Information Services. Cengage Learning, Gale)

The primary conditions that benefit from supplementation with cobalamin are megaloblastic and pernicious **anemia**. Megaloblastic anemia is a state resulting from an inadequate intake of cobalamin, to which vegans are particularly susceptible because of the lack of animal food sources. Vegans, who do not consume any animal products including meat, dairy, or eggs, should take at least 2 mcg of cobalamin per day in order to prevent this condition. In the case of pernicious anemia, intake may be appropriate but absorption is poor due to a lack of normal stomach substance, called intrinsic factor, that facilitates absorption of vitamin B_{12}. Large doses are required to treat pernicious anemia, which occurs most commonly in the elderly population as a result of decreased production of intrinsic factor by the stomach. Supplements are generally effective when taken orally in very large amounts (300-1000 mcg/day) even if no intrinsic factor is produced. These supplements require a prescription, and should be administered with the guidance of a health care provider. Injections, instead of the supplements, are often used.

Those who have **infections**, **burns**, some types of **cancer**, recent surgery, illnesses that cause decay or loss of strength, or high amounts of **stress** may need more than the RDA amount of B_{12} and other B vitamins. A balanced supplement is the best approach.

Male **infertility** can sometimes be resolved through use of cobalamin supplements. Other conditions that may be improved by cobalamin supplementation include: **asthma**, **atherosclerosis** (hardening of the arteries caused by plaque formation in the arteries), **bursitis** (inflammation of a bodily pouch, especially the shoulder or elbow), **Crohn's disease** (chronic recurrent inflammation of the intestines), **depression**, diabetes, high **cholesterol**, **osteoporosis**, and vitiligo (milky-white patches on the skin). There is not enough evidence to judge whether supplementation for these diseases is effective.

Preparations

Natural sources

Usable cobalamin is only found naturally in animal source foods. Fresh food is best, as freezing and exposure to light may destroy some of the vitamin content. Clams and beef liver have very high cobalamin levels. Other good sources include chicken liver, beef, lamb, tuna, flounder, liverwurst, eggs, and dairy products. Some plant foods may contain cobalamin, but it is not in a form that is usable by the body.

Supplemental sources

Cobalamin supplements are available in both oral and injectable formulations. A nasal gel is also made. Generally a balanced B-complex vitamin is preferable to taking high doses of cobalamin unless there is a specific indication for it, such as megaloblastic anemia. Strict vegetarians will need to incorporate a supplemental source of B_{12} in the diet. Cyanocobalamin is the form most commonly available in supplements. Two other, possibly more effective, types are hydrocobalamin and methyl-cobalamin. As with all supplements, cobalamin should be stored in a cool, dry, dark place and out of the reach of children.

Deficiency

Cobalamin deficiency may be manifested as a variety of symptoms since cobalamin is so widely used in the body. Severe **fatigue** may occur initially. Effects on the nervous system can be wide-ranging,

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Homocysteine—An amino acid produced from the metabolization of other amino acids. High levels are an independent risk factor for heart disease.

Megaloblastic anemia—A condition caused by cobalamin deficiency, which is characterized by red blood cells which are too few, too fragile, and abnormally large. Also known as macrocytic anemia.

Pernicious anemia—Megaloblastic anemia resulting from a cobalamin deficiency that is the result of poor absorption due to inadequate production of intrinsic factor in the stomach..

Vegan—A person who doesn't eat any animal products, including dairy and eggs.

and include weakness, numbness and tingling of the limbs, **memory loss**, confusion, delusion, poor balance and reflexes, hearing difficulties, and even **dementia**. Severe deficiency may appear similar to **multiple sclerosis**. **Nausea** and **diarrhea** are possible gastrointestinal signs. The anemia that results from prolonged deficiency may also be seen as a pallor, especially in mucous membranes such as the gums and the lining of the inner surface of the eye.

Megaloblastic anemia is a common result of inadequate cobalamin. This condition can also result if a person stops secreting enough intrinsic factor in the stomach, a substance essential for the absorption of cobalamin. Inadequate intrinsic factor leads to pernicious anemia, so called because it persists despite iron supplementation. Long-term deficiencies of cobalamin also allow homocysteine levels to build up. Negative effects of large amounts of circulating homocysteine include **heart disease**, and possibly brain toxicity. Taking high levels of folic acid supplements can mask cobalamin deficiency and prevent the development of megaloblastic anemia, but neurological damage can still occur. This damage may become permanent if the cobalamin deficiency persists for a long period of time.

Risk factors for deficiency

The primary groups at risk for cobalamin deficiency are vegans who are not taking supplements, and the elderly. Older adults are more likely to have both insufficient intrinsic factor secreted by the stomach and low levels of stomach acid, causing cobalamin to be poorly absorbed. Malabsorptive diseases and stomach surgery can also predispose to a deficiency.

Precautions

People who are sensitive to cobalamin or cobalt should not take cobalamin supplements. Symptoms of hypersensitivity may include swelling, **itching**, and shock. Adverse effects resulting from B_{12} supplementation are rare. Cobalamin should also be avoided by those who have a type of hereditary optic nerve atrophy known as Leber's disease.

Side effects

Very high doses of cobalamin may sometimes cause **acne**.

Interactions

Large amounts of **vitamin C** taken within an hour of vitamin B supplements will destroy the cobalamin component. Absorption of cobalamin is also impaired by deficiencies of folic acid, iron, or **vitamin E**. Improved absorption occurs when it is taken with other B vitamins or **calcium**. Some medications may also cause an increased use or decreased absorption of this vitamin. Those on colchicine, corticosteroids, methotrexate, metformin, phenformin, oral contraceptives, cholestyramine, colestipol, clofibrate, epoetin, neomycin, or supplemental **potassium** may need extra cobalamin. Use of nicotine products or excessive alcohol can deplete B_{12}.

Resources

BOOKS

Bratman, Steven, and David Kroll. *Natural Health Bible.* CA: Prima Publishing, 1999.

Feinstein, Alice. *Prevention's Healing with Vitamins.* PA: Rodale Press, 1996.

Griffith, H. Winter. *Vitamins, Herbs, Minerals & Supplements: The Complete Guide.* AZ: Fisher Books, 1998.

Jellin, Jeff, Forrest Batz, and Kathy Hitchens. *Pharmacist's Letter/Prescriber's Letter Natural Medicines Comprehensive Database.* CA: Therapeutic Research Faculty, 1999.

Pressman, Alan H. and Sheila Buff. *The Complete Idiot's Guide to Vitamins and Minerals.* New York: Alpha Books, 1997.

Judith Turner

Vitamin B_2 *see* **Riboflavin**

Vitamin B_3 *see* **Niacin**

Vitamin B_5 *see* **Pantothenic acid**

Vitamin B_6 *see* **Pyridoxine**

Vitamin B_7 *see* **Biotin**

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Vitamin B complex

Description

The vitamin B complex consists of 12 related water-soluble substances. Eight are considered essential vitamins because they need to be included in the diet. Four are not essential because the body can synthesize them. Although these vitamins are chemically distinct, they are grouped together because they are found with one another in the same foods. Since they are water-soluble, most are not stored for any length of time, and must be replenished daily. The eight vitamins have both names and corresponding numbers. They are:

- B_1 (thiamin)
- B_2 (riboflavin)
- B_3 (niacin)
- B_5 (pantothenic acid)
- B_6 (pyridoxine)
- B_7 (biotin)
- B_9 (folic acid)
- B_{12} (cobalamin)

Biotin is not always included among B complex supplements. The numbers that appear to have been skipped were found to be duplicate substances or non-vitamins. The four unnumbered components of the B complex that can be synthesized by the body are **choline**, **inositol**, PABA, and lipoic acid.

As a group, the B vitamins have a broad range of functions, including the maintenance of myelin, which is the covering of nerve cells. A breakdown of myelin can cause a large and devastating variety of neurologic symptoms. B vitamins are also key to producing energy from nutrients that are consumed. Three members of this group—folic acid, **pyridoxine**, and cobalamin—work together to keep homocysteine levels low. This is quite important, since high homocysteine levels are associated with **heart disease**. Some B vitamins prevent certain birth defects (including cleft palate and neural tube defects), maintain healthy red blood cells, support immune function, regulate cell growth, aid in hormone production, and may have a role in preventing certain types of **cancer**. They also help maintain healthy skin, hair, and nails.

General use

There are many claims regarding the usefulness of various B vitamins. **Thiamine** is thought to be supportive for people with **Alzheimer's disease**, a disorder that is also associated with low levels of pyridoxine and cobalamin. High doses of **niacin** lower **cholesterol**, and balance high-density (HDL) and low-density (LDL) lipoproteins. This should be done under medical supervision only. Some evidence shows that niacin may prevent juvenile diabetes (type 1, insulin dependent) in at-risk children. It may maintain pancreatic excretion of some insulin for a longer time than would occur normally. Niacin has also been used to relieve intermittent claudication and **osteoarthritis**, although the dose for the latter may lead to liver problems. The frequency of migraines may be significantly reduced, and the severity decreased, by the use of supplemental **riboflavin**. Pyridoxine is used therapeutically to lower the risk of heart disease, to relieve **nausea** associated with **morning sickness**, and to treat **premenstrual syndrome** (PMS). In conjunction with **magnesium**, pyridoxine may have some beneficial effects on the behavior of children with **autism**. Cobalamin supplementation has been shown to improve male fertility. **Depression**, **dementia**, and mental impairment are often associated with deficiencies of both cobalamin and **folic acid**. Folic acid may reduce the odds of cervical or colon cancer in certain risk groups.

Deficiency

Vitamin B complex is most often used to treat deficiencies that are caused by poor vitamin intake, difficulties with vitamin absorption, or conditions causing increased metabolism, such as **hyperthyroidism**, which deplete vitamin levels at a higher than normal rate.

Biotin and **pantothenic acid** are rarely deficient since they are broadly available in foods, but often persons lacking one type of B vitamin are lacking other B components as well. An individual who may have symptoms due to an inadequate level of one vitamin may suffer from an undetected underlying deficiency as well. One possibility of particular concern is that taking folic acid supplements can cover up the symptoms of cobalamin deficiency. This scenario could result in permanent neurologic damage if the cobalamin shortage remains untreated.

Some of the B vitamins have unique functions within the body that allow a particular deficiency to be readily identified. Often, however, they work in concert so symptoms due to various inadequate components may overlap. In general, poor B vitamin levels will cause profound **fatigue** and an assortment of neurologic manifestations, which may include weakness, poor balance, confusion, irritability, **memory loss**, nervousness, tingling of the limbs, and loss of coordination. Depression may be an early sign of significantly low levels of pyridoxine, as well as other B

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Beriberi—A condition caused by a thiamine deficiency, with peripheral neurologic (nerve), cerebral (brain), and cardiovascular (heart and blood vessel) symptoms.

Cleft palate—A birth defect characterized by a deep split in the roof of the mouth, associated with folic acid deficiency.

Homocysteine—An amino acid produced from the metabolization of other amino acids. High levels are an independent risk factor for heart disease.

Intermittent claudication—Calf pain that occurs while walking and is relieved at rest, and related to restricted blood flow to the legs.

Macrocytic anemia—A condition caused by cobalamin deficiency, which is characterized by red blood cells that are too few, too fragile, and abnormally large.

Megaloblastic anemia—A form of anemia involving large, irregularly shaped red blood cells, called megaloblasts, and related to vitamin B_{12} and folic acid deficiency.

Neural tube defect—Incomplete development of the brain, spinal cord, or vertebrae of a fetus, which is sometimes caused by a folic acid deficiency.

Pellagra—A deficiency disease caused by a lack of niacin in the diet, characterized by skin rash, diarrhea, and mental symptoms.

Pernicious anemia—A type of anemia that occurs when the stomach does not secrete enough intrinsic factor, which is necessary for the absorption of vitamin B_{12}.

Vasodilatory—Causing the veins in the body to dilate, or enlarge.

Vegan—A person who doesn't eat any animal products, including dairy and eggs.

Wernecke-Korsakoff Syndrome—A condition caused by thiamine deficiency and usually related to alcoholism. Symptoms occur alternately in the central nervous system (brain and spinal cord) and peripheral nervous system (nerves in the remaining parts of the body). Alcohol interferes with the body's ability to metabolize thiamine.

vitamins. Additional symptoms of vitamin B deficiency are sleep disturbances, nausea, poor appetite, frequent **infections**, and skin lesions.

A certain type of **anemia** (megaloblastic) is an effect of inadequate cobalamin. This anemia can also occur if a person stops secreting enough intrinsic factor in the stomach. Intrinsic factor is essential for the absorption of cobalamin. A lack of intrinsic factor also leads to pernicious anemia, so called because it persists despite **iron** supplementation. Neurologic symptoms often precede anemia when cobalamin is deficient.

A severe and prolonged lack of niacin causes a condition called pellagra. The classic signs of pellagra are **dermatitis**, dementia, and **diarrhea**. It is very rare now, except in alcoholics, strict vegans, and people in areas of the world with very poor **nutrition**.

Thiamine deficiency is similarly rare, except among the severely malnourished and alcoholics. A significant depletion causes a condition known as beriberi, which can cause weakness, leg spasms, poor appetite, and loss of coordination. Wernicke-Korsakoff syndrome is the most severe form of deficiency, and occurs in conjunction with **alcoholism**. Early stages of neurologic symptoms are reversible, but psychosis and death may occur if the course is not reversed.

Risk factors for deficiency

People are at higher risk for deficiency if they have poor nutritional sources of B vitamins, take medications, or have conditions that impair absorption, or are affected by circumstances causing them to require above-normal levels of vitamin B components. Since the B vitamins often work in harmony, a deficiency in one type may have broad implications. Poor intake of B vitamins is most often a problem in strict vegetarians and the elderly. People who frequently fast or diet may also benefit from B vitamin supplements. Vegans need to use **brewer's yeast** or other sources of supplemental cobalamin, since the only natural sources are meats.

Risk factors that may decrease absorption of some B vitamins include **smoking**; excessive use of alcohol; surgical removal of portions of the digestive tract; and advanced age. Absorption is also impaired by some medications. Some of the drugs that may cause decreased absorption are corticosteroids, colchicine, metformin, phenformin, omeprazol, colestipol, cholestyramine, methotrexate, 5-fluorouracil, tricyclic antidepressants, and slow-release **potassium**.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

A person's requirement for vitamin B complex may be increased by such conditions as **pregnancy**, breast-feeding, emotional **stress**, and physical stress due to surgery or injury. People who are very physically active require extra riboflavin. Use of birth control pills also increases the need for certain B vitamins.

Recent research indicates that children with **sickle cell anemia** are at high risk for elevated homocysteine levels and pyridoxine deficiency.

Studies of folic acid deficiency caused by cancer chemotherapy indicate that some patients are at greater risk than others due to genetic variations in metabolism of the B vitamins. Further research is needed to determine the role of these genetic factors in vitamin deficiency states.

Preparations

Natural sources

Although they are prevalent in many foods, fresh meats and dairy products are the best sources for most of the B vitamins. Cobalamin is only found naturally in animal source foods. Freezing of food and exposing foods or supplements to light may destroy some of the vitamin content. Dark-green leafy vegetables are an excellent source of folic acid. To make the most of the B vitamins contained in foods, they should not be overcooked. It is best to steam vegetables, rather than boil or simmer them.

Supplemental sources

B vitamins are generally best taken in balanced complement, unless there is a specific deficiency or need for an individual vitamin. An excess of one component may lead to depletion of the others. Injectable and oral forms of supplements are available. The injectable types may be more useful for those with deficiencies due to problems with absorption. B complex products vary in terms of components and dose level contained within them.

Individual components are also available as supplements. These are best used with the advice of a health care professional. Some are valuable when addressing specific problems such as pernicious anemia. Strict vegetarians will need to incorporate a supplemental source of B_{12} in their **diets**.

Precautions

In many cases, large doses of water-soluble vitamins can be taken with no ill effects since excessive amounts are readily excreted. However, liver inflammation may occur when niacin is taken at daily doses of over 500 mg. This problem occurs more often at doses six times as high. It is generally reversible once the supplementation is stopped. Niacin may also cause difficulty in controlling blood sugar in diabetics. It can increase uric acid levels, which will aggravate **gout**. Those with ulcers could be adversely affected, as niacin increases the production of stomach acid. Niacin also lowers blood pressure due to its vasodilatory effect, so it should not be taken in conjunction with medications that treat high blood pressure. If a form of niacin known as inositol hexaniacinate is taken, the beneficial effects on cholesterol are maintained without incurring the problems of flushing, gout, and ulcers.

High doses of pyridoxine may cause liver inflammation or permanent nerve damage. Megadoses of this vitamin are not necessary or advisable.

Those on medications for seizures, high blood pressure, and **Parkinson's disease** are at increased risk for interactions. Persons who have chronic health conditions, or take other medications, should seek the advice of a health professional before beginning any program of supplementation.

Side effects

In large amounts, niacin commonly causes flushing and **headache**, although this can be avoided by taking it in the form of inositol hexaniacinate. Large doses of riboflavin result in very bright yellow urine.

Interactions

Some medications may be affected by B vitamin supplementation, including those prescribed for high blood pressure; Parkinson's disease (such as levodopa, which is inactivated by pantothenic acid); and epileptiform conditions. Folic acid interacts with Dilantin (a brand name for phenytoin sodium), as well as other anticonvulsants. Large amounts of **vitamin C** taken within an hour of vitamin B supplements will destroy the cobalamin component. Niacin may interfere with control of blood sugar in people on antidiabetic drugs. Isoniazid, a medication to treat **tuberculosis**, can impair the proper production and utilization of niacin. Antibiotics potentially decrease the level of some B vitamins by killing the digestive tract bacteria that produce them.

Resources

BOOKS

Bratman, Steven, and David Kroll. *Natural Health Bible.* CA: Prima Publishing, 1999.

Feinstein, Alice. *Prevention's Healing with Vitamins.* PA: Rodale Press, 1996.

Griffith, H. Winter. *Vitamins, Herbs, Minerals & Supplements: The Complete Guide.* AZ: Fisher Books, 1998.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Janson, Michael. *The Vitamin Revolution in Health Care.* Arcadia Press, 1996.

Jellin, Jeff, Forrest Batz, and Kathy Hitchens. *Pharmacist's letter/Prescriber's Letter Natural Medicines Comprehensive Database.* CA: Therapeutic Research Faculty, 1999.

Pressman, Alan H., and Sheila Buff. *The Complete Idiot's Guide to Vitamins and Minerals.* New York: Alpha Books, 1997.

PERIODICALS

Balasa, W., K. A. Kalinyak, J. A. Bean, et al. "Hyperhomocysteinemia is Associated with Low Plasma Pyridoxine Levels in Children with Sickle Cell Disease." *Journal of Pediatric Hematology and Oncology* 24 (June-July 2002): 374-9.

Fairfield, K. M., and R. H. Fletcher. "Vitamins for Chronic Disease Prevention in Adults: Scientific Review." *Journal of the American Medical Association (JAMA)* 287 (June 19, 2002): 3116-26.

McCaddon, A., B. Regland, P. Hudson, and G. Davies. "Functional Vitamin B_{12} Deficiency and Alzheimer's Disease." *Neurology* 58 (May 14, 2002): 1395-9.

Miller, J. W., R. Green, D. M. Mungas, et al. "Homocysteine, Vitamin B_6, and Vascular Disease in AD Patients." *Neurology* 58 (May 28, 2002): 1449-50.

Morris, M. S. "Folate, Homocysteine, and Neurological Function." *Nutrition in Clinical Care* 5 (May-June 2002): 124-32.

Prescott, N. J., and S. Malcolm. "Folate and the Face: Evaluating the Evidence for the Influence of Folate Genes on Craniofacial Development." *The Cleft Palate-Craniofacial Journal* 39 (May 2002): 327-31.

Ulrich, C. M., K. Robien, and R. Sparks. "Pharmacogenetics and Folate Metabolism—A Promising Direction." *Pharmacogenomics* 3 (May 2002): 299-313.

Wolters M., A. Strohle, and A. Hahn. "Age-associated changes in the metabolism of vitamin B_{12} and folic acid: Prevalence, aetiopathogenesis and pathophysiological consequences." *Zeitschrift für Gerontologie und Geriatrie* 2004 Apr: 37(2):109-35. (article in German, reviewed in abstract only)

ORGANIZATIONS

American Dietetic Association. 216 West Jackson Blvd., Chicago, IL 60606. (312) 899-0040. http://www.eatright.org.

Rebecca J. Frey, Ph.D.
Samuel Uretsky, Pharm.D.

Vitamin C

Description

Vitamin C, or ascorbic acid, is naturally produced in fruits and vegetables. The vitamin, which can be taken in dietary or supplementary form, is absorbed by the intestines. That which the body cannot absorb is excreted in the urine. Daily intake of vitamin C, preferably in dietary form, is recommended for optimum health.

Vitamin C doses for common illnesses

Illness	Dose per 24 hours
Asthma	15 - 50 grams (g); 4 - 8 doses per 24 hours
Hay fever	15 - 50 grams (g); 4 - 8 doses per 24 hours
Common cold	30 - 60 grams (g); 6 - 10 doses per 24 hours
Influenza	100 - 150 grams (g); 8 - 20 doses per 24 hours
Viral pneumonia	100 - 200+; 12 - 25 doses per 24 hours

(Illustration by Corey Light. Cengage Learning, Gale)

Long before people knew what vitamin C was, they understood that eating certain foods, especially citrus fruit, would prevent a disease called scurvy. Vitamin C turned out to be the essential health-promoting compound in these foods. This vitamin was isolated in the early 1930s, and by 1934, a synthetic version of vitamin C was produced by the pharmaceutical company Hoffman-La Roche.

All animals need vitamin C, but most animals can make their own. Humans, along with apes, guinea pigs, and a few other animals, have lost that ability. In humans, this occurs because of a gene mutation that controls an enzyme needed to make vitamin C. As a result, humans are completely dependent on getting enough of the vitamin from foods in their diet. In addition, vitamin C cannot be stored in the body. It is a water-soluble vitamin, and any amount that cannot be used immediately is excreted in urine. Vitamin C is not evenly distributed throughout the body. The adrenal glands, pituitary gland, thymus, retina, brain, spleen, lungs, liver, thyroid, testicles, lymph nodes, kidney, and pancreas all contain much higher levels of vitamin C than are found in circulating blood.

Certain health conditions may cause vitamin C depletion, including diabetes and high blood pressure. People who smoke and women who take estrogen may also have lower vitamin C levels. In addition, men are

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Recommended dietary allowance of vitamin C

Age	mg/day
Children 0-6 mos.	40 (AI)
Children 7-12 mos.	50 (AI)
Children 1-3 yrs.	15
Children 4-8 yrs.	25
Children 9-13 yrs.	45
Boys 14-18 yrs.	75
Girls 14-18 yrs.	65
Men ≥ 19 yrs.	90
Women ≥19 yrs.	75
Men who smoke	125
Women who smoke	110
Pregnant women ≤ 18 yrs.	80
Pregnant women ≥ 19 yrs.	85
Breastfeeding women ≥ 19 yrs.	120

Foods that contain vitamin C	mg
Pepper, red bell, raw, 1/2 cup	141
Papaya, 1	94
Strawberries, 1 cup	82
Orange juice, 3/4 cup	75
Orange, 1 med.	70
Broccoli, steamed, 1/2 cup	62
Grapefruit juice, 3/4 cup	60
Grapefruit, 1/2 med.	44
Cauliflower, boiled, 1/2 cup	27
Potato, baked, 1 med.	26
Tomato, 1 med.	23

AI = Adequate Intake
mg = milligram

(Illustration by GGS Information Services. Cengage Learning, Gale)

more likely to be vitamin C depleted, as are the elderly. High **stress** levels have also been linked to vitamin C deficiency. In addition, certain medical and surgical procedures may lower the levels of vitamin C in the body. It has been found that hemodialysis causes patients with kidney disease to lose as much as 66 mg per session. Similarly, patients who have had kidney transplants are at increased risk of vitamin C deficiency.

Severe vitamin C deficiency leads to scurvy, a disease common on ships prior to the eighteenth century, due to the lack of fresh fruits and other dietary vitamin C sources. Symptoms of scurvy include weakness, bleeding, tooth loss, bleeding gums, bruising, and joint **pain**. Less serious vitamin C depletion can have more subtle effects such as weight loss, **fatigue**, weakened immune system (as demonstrated by repeated **infections** and colds), **bruises** that occur with minor trauma and are slow to heal, and slow healing of other **wounds**.

Low vitamin C levels have also been associated with high blood pressure, increased **heart attack** risk, increased risk for developing **cataracts**, and a higher risk for certain types of **cancer** (i.e., prostate, stomach, colon, oral, and lung).

General use

Vitamin C is a critical component of both disease prevention and of basic body building processes. The therapeutic effects of vitamin C include:

- Allergy and asthma relief. Vitamin C is present in the lung's airway surfaces, and insufficient vitamin C levels have been associated with bronchial constriction and reduced lung function. Some studies have associated vitamin C supplementation with asthmatic symptom relief, but results have been inconclusive and further studies are needed.
- Cancer prevention. Vitamin C is a known antioxidant and has been associated with reduced risk of stomach, lung, colon, oral, and prostate cancer.
- Cataract prevention. Long-term studies on vitamin C supplementation and cataract development have shown that supplementation significantly reduces the risk of cataracts, particularly among women. One study published in 2002 found that adequate vitamin C intake in women under 60 years of age reduced their risk of developing cataracts by 57%.
- Collagen production. Vitamin C assists the body in the manufacture of collagen, a protein that binds cells together and is the building block of connective tissues throughout the body. Collagen is critical to the formation and ongoing health of the skin, cartilage, ligaments, corneas, and other bodily tissues and structures. Vitamin C is also thought to promote faster healing of wounds and injuries because of its role in collagen production.
- Diabetes control. Vitamin C supplementation may assist diabetics in controlling blood sugar levels and improving metabolism.
- Gallbladder disease prevention. A study of over 13,000 subjects published in the *Archives in Internal Medicine* found that women who took daily vitamin C supplements were 34% less likely to contract gallbladder disease and gallstones, and that women deficient in ascorbic acid had an increased prevalence of gallbladder disease.
- Immune system booster. Vitamin C increases white blood cell production and is important to immune

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

system balance. Studies have related low vitamin C levels to increased risk for infection. Vitamin C is frequently prescribed for HIV-positive individuals to protect their immune system.

- Neurotransmitter and hormone building. Vitamin C is critical to the conversion of certain substances into neurotransmitters, brain chemicals that facilitate the transmission of nerve impulses across a synapse (the space between neurons, or nerve cells). Such neurotransmitters as serotonin, dopamine, and norepinephrine are responsible for the proper functioning of the central nervous system, and a deficiency of neurotransmitters can result in psychiatric illness. Vitamin C also helps the body manufacture adrenal hormones.

Other benefits of vitamin C are less clear cut and have been called into question with conflicting study results. These include vitamin C's role in treating the **common cold**, preventing **heart disease**, and treating cancer.

Respiratory health

Doses of vitamin C may reduce the duration and severity of cold symptoms, particularly in people who are vitamin C deficient. The effectiveness of vitamin C therapy on colds seems to be related to the person's dietary vitamin C intake and their general health and lifestyle. In addition, however, other researchers have found that vitamin C is associated with improved lung function and overall respiratory health.

Heart disease prevention

Some studies have indicated that vitamin C may prevent heart disease by lowering total blood **cholesterol** and LDL cholesterol and raising HDL, or good cholesterol, levels. The antioxidant properties of vitamin C have also been associated with protection of the arterial lining in patients with coronary artery disease. A study published in 2002 reported that the protective effects of vitamin C on the lining of the arteries reduces the risk of heart disease in patients who have received heart transplants.

On the other hand, the results of a recent study conducted at the University of Southern California and released in early 2000 have cast doubt on the heart protective benefits of vitamin C. The study found that daily doses of 500 mg of vitamin C resulted in a thickening of the arteries in study subjects at a rate 2.5 times faster than normal. Thicker arterial walls can cause narrow blood vessels and actually increase the risk for heart disease. Study researchers have postulated that the collagen-producing effects of vitamin C could be the cause behind the arterial thickening. Further studies will be needed to determine the actual risks and benefits of vitamin C in relation to heart disease and to establish what a beneficial dosage might be, if one exists. For the time being, it is wise for most individuals, particularly those with a history of heart disease, to avoid megadoses over 200 mg because of the risk of arterial thickening.

Blood pressure control

A 1999 study found that daily doses of 500 mg of vitamin C reduced blood pressure in a group of 39 hypertensive individuals. Scientists have hypothesized that vitamin C may improve high blood pressure by aiding the function of nitric oxide, a gas produced by the body that allows blood vessels to dilate and facilitates blood flow. Again, recent findings that vitamin C may promote arterial wall thickening seem to contradict these findings, and further long-term studies are needed to assess the full benefits and risks of vitamin C in relation to blood pressure control.

Cancer treatment

Researchers disagree on the therapeutic use of vitamin C in cancer treatment. On one hand, studies have shown that tumors and cancer cells absorb vitamin C at a faster rate than normal cells because they have lost the ability to transport the vitamin. In addition, radiation and chemotherapy work in part by stimulating oxidation and the growth of free radicals in order to stop cancer cell growth. Because vitamin C is an antioxidant, which absorbs free radicals and counteracts the oxidation process, some scientists believe it could be counterproductive to cancer treatments. The exact impact vitamin C has on patients undergoing chemotherapy and other cancer treatments is not fully understood, and for this reason many scientists believe that vitamin C should be avoided by patients undergoing cancer treatment.

On the other side of the debate are researchers who believe that high doses of vitamin C can protect normal cells and inhibit the growth of cancerous ones. In lab-based, in vitro studies, cancer cells were killed and/or stopped growing when large doses of vitamin C were administered. Researchers postulate that unlike normal healthy cells, which will take what they need of a vitamin and then discard the rest, cancer cells continue to absorb antioxidant vitamins at excessive rates until the cell structure is effected, the cell is killed, or cell growth simply stops. However, it is important to note that there have been no in vivo controlled clinical studies to prove this theory.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Based on the currently available controlled clinical data, cancer patients should avoid taking vitamin C supplementation beyond their recommended daily allowance.

Preparations

The United States Institute of Medicine (IOM) of the National Academy of Sciences has developed values called Dietary Reference Intakes (DRIs) for vitamins and minerals. The DRIs consist of three sets of numbers. The Recommended Dietary Allowance (RDA) defines the average daily amount of the nutrient needed to meet the health needs of 97–98% of the population. The Adequate Intake (AI) is an estimate set when there is not enough information to determine an RDA. The Tolerable Upper Intake Level (UL) is the average maximum amount that can be taken daily without risking negative side effects. The DRIs are calculated for children, adult men, adult women, pregnant women, and breastfeeding women.

The IOM has not set RDAs for vitamin C in children under one year old because of incomplete scientific information. Instead, it has set AI levels for this age group. RDAs and ULs for vitamin C are measured in milligrams (mg). The RDAs and ULs set by the IOM are highly controversial. They are set at a level based on preventing scurvy. Many researchers believe that doses hundreds of times higher are needed to prevent certain chronic diseases. They argue that large doses of vitamin C have minimal side effects and that RDAs and ULs should be much higher. These researchers suggest of anywhere from 400–3,000 mg per day for health adults.

The following list gives the daily RDAs and IAs and ULs for vitamin C for healthy individuals as established by the IOM.

- children birth–6 months: AI 40 mg; UL not established; All vitamin C should come from breast milk, fortified formula, or food.
- children 7–12 months: AI 50 mg; UL not established; All vitamin C should come from breast milk, fortified formula, or food.
- children 1–3 years: RDA 15 mg; UL 400 mg
- children 4–8 years: RDA 25 mg; UL 650 mg
- children 9–13 years: RDA 45 mg; UL 1,200 mg
- boys 14–18 years: RDA 75 mg; UL 1,800 mg
- girls 14–18 years: RDA 65 mg; UL 1,800 mg
- men age 19 and older: RDA 90 mg; UL 2,000 mg
- women age 19 and older: RDA 75 mg; UL 2,000 mg
- men who smoke: RDA 125 mg; UL 2,000 mg
- women who smoke: RDA 110 mg; UL 2,000 mg
- pregnant women 18 years and younger: RDA 80 mg; UL 1,800 mg
- pregnant women 19 years and older: RDA 85 mg; UL 2,000 mg
- breastfeeding women 19 years and older: RDA 120 mg; 2,000 mg

Many fruits and vegetables, including citrus fruits and berries, are rich in vitamin C. Foods rich in vitamin C include raw red peppers, guava, orange juice, and black currants. Rose hips, broccoli, tomatoes, strawberries, papaya, lemons, kiwis, and brussels sprouts are also good sources of vitamin C. Eating at least five to nine servings of fruits and vegetables daily should provide adequate vitamin C intake for most people. Fresh, raw fruits and vegetables contain the highest levels of the vitamin.

The following list gives the approximate vitamin C content for some common foods:

- orange, 1 medium: 70 mg
- orange juice, 3/4 cup (6 ounces): 75 mg
- grapefruit, 1/2 medium: 44 mg
- grapefruit juice, 3/4 cup (6 ounces): 60 mg
- strawberries, 1 cup: 82 mg
- papaya, 1: 94 mg
- tomato, 1 medium: 23 mg
- red bell pepper, 1/2 cup raw: 141 mg
- broccoli, steamed, 1/2 cup: 62 mg
- cauliflower, boiled, 1/2 cup: 27 mg
- potato, 1 medium, baked: 26 mg

Both heat and light can reduce vitamin C potency in fresh foods, so overcooking and improper storage should be avoided. Sliced and chopped foods have more of their surface exposed to light, so keeping vegetables and fruits whole may also help to maintain full vitamin potency.

Vitamin C supplements are another common source of the vitamin. Individuals at risk for vitamin C depletion such as smokers, women who take birth control pills, and those with unhealthy dietary habits may benefit from a daily supplement. Supplements are available in a variety of different forms including pills, capsules, powders, and liquids. Vitamin C formulas also vary. Common compounds include ascorbic acid, **calcium** ascorbate, **sodium** ascorbate, and C complex. The C complex compound contains a substance called **bioflavonoids**, which may enhance the benefits of vitamin C. Vitamin C is also available commercially as one ingredient of a multivitamin formula.

Vitamin C is added to some skin creams, throat lozenges, energy drinks, and energy bars, and to some

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

processed foods. In 2007, the two largest American soft drink manufacturers announced that they were going to produce carbonated drinks fortified with vitamins and minerals, including vitamin C.

Precautions

Overdoses of vitamin C can cause **nausea**, **diarrhea**, stomach cramps, skin **rashes**, and excessive urination.

Because of an increased risk of kidney damage, persons with a history of kidney disease or **kidney stones** should never take dosages above 200 mg daily, and should consult with their healthcare provider before starting vitamin C supplementation.

A 1998 study linked overdoses (above 500 mg) of vitamin C to cell and DNA damage. However, other studies have contradicted these findings, and further research is needed to establish whether high doses of vitamin C can cause cell damage.

Side effects

Vitamin C can cause diarrhea and nausea. In some cases, side effects may be decreased or eliminated by adjusting the dosage of vitamin C.

Interactions

Vitamin C increases **iron** absorption, and is frequently prescribed with or added to commercial iron supplements for this reason.

Individuals taking anticoagulant, or blood thinning, medications should speak with their doctor before taking vitamin C supplements, as large doses of vitamin C may impact their efficacy.

Large amounts of vitamin C may increase estrogen levels in women taking hormone supplements or birth control medications, especially if both the supplement and the medication are taken simultaneously. Women should speak with their doctor before taking vitamin C if they are taking estrogen-containing medications. Estrogen actually decreases absorption of vitamin C, so larger doses of vitamin C may be necessary. A healthcare provider can recommend proper dosages and the correct administration of medication and supplement.

Individuals who take aspirin, antibiotics, and/or steroids should consult with their healthcare provider about adequate dosages of vitamin C. These medications can increase the need for higher vitamin C doses.

Large dosages of vitamin C can cause a false-positive result in tests for diabetes.

KEY TERMS

Adrenal hormone—The adrenocortical hormones are cortisol and cortisone. They are anti-inflammatory substances that aid in the function of a number of body systems, including the central nervous system, the cardiovascular system, the musculoskeletal system, and the gastrointestinal system.

Antioxidants—Enzymes that bind with free radicals to neutralize their harmful effects.

Ascorbic acid—Another name for vitamin C, derived from its ability to prevent scurvy.

Bioflavonoids—Plant-derived substances that help to maintain the small blood vessels of the circulatory system.

Free radicals—Reactive molecules created during cell metabolism that can cause tissue and cell damage like that which occurs in aging and with disease processes such as cancer.

In vitro testing—A test performed in a lab setting rather than in a human or animal organism. The test may involve living tissue or cells, but takes place out of the body.

In vivo testing—A test performed on a living organism, such as a controlled clinical study involving human test subjects. In vivo is Latin for "in the living body."

Resources

BOOKS

Berkson, Burt and Arthur J. Berkson. *Basic Health Publications User&s Guide to the B-complex Vitamins.* Laguna Beach, CA: Basic Health Publications, 2006.

Lieberman, Shari and Nancy Bruning. *The Real Vitamin and Mineral Book: The Definitive Guide to Designing Your Personal Supplement Program*, 4th ed. New York: Avery, 2007.

Peel, Thomas, ed. *Vitamin C: New Research.* New York: Nova Science Publishers, 2006.

Reavley, Nocola. *The New Encyclopedia of Vitamins, Minerals, Supplements, and Herbs.* New York: M. Evans & Company, 1998.

PERIODICALS

du Plessis, A. S., H. Randall, E. Escreet, et al. "Nutritional Status of Renal Transplant Patients." *South African Medical Journal* 92 (January 2002): 68-74.

Fang, J. C., S. Kinlay, J. Beltrame, et al. "Effect of Vitamins C and E on Progression of Transplant-Associated Arteriosclerosis: A Randomized Trial." *Lancet* 359 (March 30, 2002): 1108-1113.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Henderson, C.W."Prevalence Lower in Women with Increased Vitamin C Levels." *Women's Health Weekly* (April 22, 2000): 7.

Jacob, R. A., and G. Sotoudeh. "Vitamin C Function and Status in Chronic Disease." *Nutrition in Clinical Care* 5 (March-April 2002): 66-74.

Leibman, Bonnie."Antioxidants." *Nutrition Action Health Letter* (June 2000): 9.

Morena, M., J. P. Cristol, J. Y. Bosc, et al. "Convective and Diffusive Losses of Vitamin C During Haemodiafiltration Session: A Contributive Factor to Oxidative Stress in Haemodialysis Patients." *Nephrology Dialysis Transplantation* 17 (March 2002): 422-427.

"New Questions About the Safety of Vitamin C Pills." *Tufts University Health & Nutrition Letter* (April 2000): 1.

Schunemann, H. J., S. McCann, B. J. Grant, et al. "Lung Function in Relation to Intake of Carotenoids and Other Antioxidant Vitamins in a Population-Based Study." *American Journal of Epidemiology* 155 (March 1, 2002): 463-471.

Taylor, A., P. F. Jacques, L. T. Chylack, Jr., et al. "Long-Term Intake of Vitamins and Carotenoids and Odds of Early Age-Related Cortical and Posterior Subcapsular Lens Opacities." *American Journal of Clinical Nutrition* 75 (March 2002): 540-549.

Tsuchiya, M., A. Asada, E. Kasahara, et al. "Smoking a Single Cigarette Rapidly Reduces Combined Concentrations of Nitrate and Nitrite and Concentrations of Antioxidants in Plasma." *Circulation* 105 (March 12, 2002): 1155-1157.

ORGANIZATIONS

American Dietetic Association, 120 South Riverside Plaza, Suite 2000, Chicago, Illinois, 60606-6995, (800) 877-1600, http://www.eatright.org.

United States Department of Agriculture. Center for Nutrition Policy and Promotion, 1120 20th Street NW, Suite 200, North Lobby, Washington, D.C., 20036, (202)418–2312, john.webster@usda.gov, http://www. usda.gov/cnpp/.

Vitamin C Foundation, P. O. Box 73172, Houston, TX, 77273, (888) 443-3634, (281) 443-3634, http://www. vitaminc foundation.org/found.htm.

Paula Ford-Martin
Rebecca J. Frey, PhD
Helen Davidson

Vitamin D

Description

Vitamin D, also known as calciferol, is essential for strong teeth and bones. There are two major forms of vitamin D: D_2, or ergocalciferol, and D_3, or cholecarciferol. Vitamin D can be synthesized by the body in the presence of sunlight, as opposed to being required in the diet. It is the only vitamin whose biologically active formula is a hormone. It is fat-soluble, and regulates the body's absorption and use of the minerals **calcium** and **phosphorus**. Vitamin D is important not only to the maintenance of proper bone density, but to the many calcium-driven neurologic and cellular functions, as well as normal growth and development. It also assists the immune system by playing a part in the production of a type of white blood cell called the monocyte. White blood cells are infection fighters. There are many chemical forms of vitamin D, which have varying amounts of biological activity.

General use

The needed amount of vitamin D is expressed as an Adequate Intake (AI) rather than an Required Daily Amount (RDA). This is due to a difficulty in quantifying the amount of the vitamin that is produced by the body with exposure to sunlight. Instead, the AI estimates the amount needed to be eaten in order to maintain normal function. It is measured in International Units (IU) and there are 40 IU in a microgram (mcg). The AI for vitamin D in the form of cholecarciferol or ergocalciferol for everyone under 50 years of age, including pregnant and lactating women, is 200 IU. It goes up to 400 IU for people 51-70 years old, and to 600 IU for those over age 70. A slightly higher dose of vitamin D, even as little as a total of 700 IU for those over age 65, can significantly reduce age-related **fractures** when taken with 500 mg of calcium per day.

One of the major uses of vitamin D is to prevent and treat **osteoporosis**. This disease is essentially the result of depleted calcium, but calcium supplements alone will not prevent it since vitamin D is required to properly absorb and utilize calcium. Taking vitamin D without the calcium is also ineffective. Taking both together may actually increase bone density in postmenopausal women, who are most susceptible to bone loss and complications such as fractures.

Osteomalacia and rickets are also effectively prevented and treated through adequate vitamin D supplementation. Osteomalacia refers to the softening of the bones that occurs in adults that are vitamin D deficient. Rickets is the syndrome that affect deficient children, causing bowed legs, joint deformities, and poor growth and development.

Vitamin D also has a part in **cancer** prevention, at least for colon cancer. A deficiency increases the risk

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Adequate intake of vitamin D

Age	IU/day	mcg/day
Children 0-12 mos.	200 IU	5 mcg
Children 1-18 yrs.	200 IU	5 mcg
Adults 19-50 yrs.	200 IU	5 mcg
Adults 51-70 yrs.	400 IU	10 mcg
Adults ≥ 71 yrs.	600 IU	15 mcg
Pregnant women	200 IU	5 mcg
Breastfeeding women	200 IU	5 mcg

Foods that contain vitamin D	mcg
Cod liver oil, 1 tbsp	1,360
Salmon, cooked, 3.5 oz.	360
Mackerel, cooked, 3.5 oz.	345
Tuna, canned in oil, 3 oz.	200
Milk, fortified, 1 cup	100
Orange juice, fortified, 1 cup	100
Cereal, fortified, 1 serving	40
Egg, 1 whole	20

IU = International Unit
mcg = microgram

(Illustration by GGS Information Services. Cengage Learning, Gale)

of this type of cancer, but there is no advantage to taking more than the AI level. There may also be a protective effect against breast and **prostate cancer**, but this is not as well established. Studies are in progress to see if it can help to treat **leukemia** and lymphoma. The action of at least one chemotherapeutic drug, tamoxifen, appears to be improved with small added doses of vitamin D. Tamoxifen is commonly used to treat ovarian, uterine, and breast cancers.

Many older adults are deficient in vitamin D. This can affect hearing by causing poor function of the small bones in the ear that transmit sound. If this is the cause of the **hearing loss**, it is possible that supplementation of vitamin D can act to reverse the situation.

Some metabolic diseases are responsive to treatment with specific doses and forms of vitamin D. These include Fanconi syndrome and familial hypophosphatemia, both of which result in low levels of phosphate. For these conditions, the vitamin is given in conjunction with a phosphate supplement to aid in absorption.

A topical form of vitamin D is available, and can be helpful in the treatment of plaque-type **psoriasis**. It may also be beneficial for those with vitiligo or scleroderma. This cream, in the form of calcitriol, is not thought to affect internal calcium and phosphorus levels. Oral supplements of vitamin D are not effective for psoriasis. The cream is obtainable by prescription only.

Evidence does not support the use of vitamin D to treat **alcoholism**, **acne**, arthritis, cystic fibrosis, or herpes.

KEY TERMS

Osteomalacia—Literally soft bones, a condition seen in adults deficient in vitamin D. The bones are painful and fracture easily.

Scleroderma—A condition causing thickened, hardened skin.

Tetany—Painful muscles spasms and tremors caused by very low calcium levels.

Vegan—A person who doesn't eat any animal products, including dairy and eggs.

Vitiligo—Patchy loss of skin pigmentation, resulting in lighter areas of skin.

Preparations

Natural sources

Exposure to sunlight is the primary method of obtaining vitamin D. In clear summer weather, approximately ten minutes per day in the sun will produce adequate amounts, even when only the face is exposed. In the winter, it may require as much as two hours. Many people don't get that amount of winter exposure, but are able to utilize the vitamin that was stored during extra time in the sun over the summer. Sunscreen blocks the ability of the sun to produce vitamin D, but should be applied as soon as the minimum exposure requirement has passed, in order to reduce the risk of **skin cancer**. The chemical 7-dehydrocholesterol in the skin is converted to vitamin D_3 by sunlight. Further processing by first the liver, and then the kidneys, makes D_3 more biologically active. Since it is fat-soluble, extra can be stored in the liver and fatty tissues for future use. Vitamin D is naturally found in fish liver oils, butter, eggs, and fortified milk and cereals in the form of vitamin D_2. Milk products are the main dietary source for most people. Other dairy products are not a good supply of vitamin D, as they are made from unfortified milk. Plant foods are also poor sources of vitamin D.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Supplemental sources

Most oral supplements of vitamin D are in the form of ergocalciferol. It is also available in topical (calcitriol or calcipotriene), intravenous (calcitriol), or intramuscular (ergocalciferol) formulations. Products designed to be given by other than oral routes are by prescription only. As with all supplements, vitamin D should be stored in a cool, dry place, away from direct light, and out of the reach of children.

Deficiency

In adults, a mild deficiency of vitamin D may be manifested as loss of appetite and weight, difficulty sleeping, and **diarrhea**. A more serious deficiency causes osteomalacia and muscle spasm. The bones become soft, fragile, and painful as a result of the calcium depletion. This is due to an inability to properly absorb and utilize calcium in the absence of vitamin D. In children, a severe lack of vitamin D causes rickets.

Risk factors for deficiency

The most likely cause of vitamin D deficiency is inadequate exposure to sunlight. This can occur with people who don't go outside much, those in areas of the world where pollution blocks ultraviolet (UV) light or where the weather prohibits spending much time outdoors. Glass filters out the rays necessary for vitamin formation, as does sunscreen. Those with dark skin may also absorb smaller amounts of the UV light necessary to effect conversion of the vitamin. In climates far to the north, the angle of the sun in winter may not allow adequate UV penetration of the atmosphere to create D_3. Getting enough sun in the summer, and a good dietary source, should supply enough vitamin D to last through the winter. Vegans, or anyone who doesn't consume dairy products in combination with not getting much sun, is also at higher risk, as are the elderly, who have a decreased ability to synthesize vitamin D.

Babies are usually born with about a nine-month supply of the vitamin, but breast milk is a poor source. Those born prematurely are at an increased risk for deficiency of vitamin D and calcium, and may be prone to tetany. Infants past around nine months old who are not getting vitamin D fortified milk or adequate sun exposure are at risk of deficiency.

People with certain intestinal, liver and kidney diseases may not be able to convert vitamin D_3 to active forms, and may need an activated type of supplemental vitamin D.

Those taking certain medications may require supplements, including anticonvulsants, corticosteroids, or the cholesterol-lowering medications cholestyramine or colestipol. This means that people who are on medication for arthritis, **asthma**, **allergies**, autoimmune conditions, high **cholesterol**, **epilepsy**, or other seizure problems should consult with a healthcare practitioner about the advisability of taking supplemental vitamin D. As with some other vitamins, the abuse of alcohol also has a negative effect. In the case of vitamin D, the ability to absorb and store it is diminished by chronic overuse of alcohol products.

Populations with poor nutritional status may tend to be low on vitamin D, as well as other vitamins. This can be an effect of poor sun exposure, poor intake, or poor absorption. A decreased ability to absorb oral forms of vitamin D may result from cystic fibrosis or removal of portions of the digestive tract. Other groups who may need higher than average amounts of vitamin D include those who have recently had surgery, major injuries, or **burns**. High levels of **stress** and chronic wasting illnesses also tend to increase vitamin requirements.

Precautions

The body will not make too much vitamin D from overexposure to sun, but since vitamin D is stored in fat, toxicity from supplemental overdose is a possibility. Symptoms are largely those of hypercalcemia, and may include high blood pressure, **headache**, weakness, **fatigue**, heart arrhythmia, loss of appetite, **nausea**, **vomiting**, diarrhea, **constipation**, **dizziness**, irritability, seizures, kidney damage, poor growth, premature hardening of the arteries, and **pain** in the abdomen, muscles, and bones. If the toxicity progresses, **itching** and symptoms referable to renal disease may develop, such as thirst, frequent urination, proteinuria, and inability to concentrate urine. Overdoses during **pregnancy** may cause fetal abnormalities. Problems in the infant can include tetany, seizures, heart valve malformation, retinal damage, growth suppression, and mental retardation. Pregnant women should not exceed the AI, and all others over one year of age should not exceed a daily dose of 2000 IU. Infants should not exceed 1000 IU. These upper level doses should not be used except under the advice and supervision of a healthcare provider due to the potential for toxicity.

Individuals with hypercalcemia, sarcoidosis, or hypoparathyroidism should not use supplemental calciferol. Those with kidney disease, arteriosclerosis, or **heart disease** should use ergocalciferol only with extreme caution and medical guidance.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Side effects

Minor side effects may include poor appetite, constipation, **dry mouth**, increased thirst, metallic taste, or fatigue. Other reactions, which should prompt a call to a healthcare provider, can include headache, nausea, vomiting, diarrhea, or confusion.

Interactions

The absorption of vitamin D is improved by calcium, **choline**, fats, phosphorus, and vitamins A and C. Supplements should be taken with a meal to optimize absorption.

There are a number of medications that can interfere with vitamin D levels, absorption, and metabolism. Rifampin, H_2 blockers, barbiturates, heparin, isoniazid, colestipol, cholestyramine, carbamazepine, phenytoin, fosphenytoin, and phenobarbital reduce serum levels of vitamin D and increase metabolism of it. Anyone who is on medication for epilepsy or another seizure disorder should check with a healthcare provider to see whether it is advisable to take supplements of vitamin D. Overuse of mineral oil, Olestra, and stimulant laxatives may also deplete vitamin D. Osteoporosis and hypocalcemia can result from long-term use of corticosteroids. It may be necessary to take supplements of calcium and vitamin D together with this medication. The use of thiazide diuretics in conjunction with vitamin D can cause hypercalcemia in individuals with hypoparathyroidism. Concomitant use of digoxin or other cardiac glycosides with vitamin D supplements may lead to hypercalcemia and heart irregularities. The same caution should be used with herbs containing cardiac glycosides, including black hellebore, Canadian hemp, **digitalis**, hedge mustard, figwort, lily of the valley, **motherwort**, oleander, pheasant's eye, **pleurisy**, squill, and strophanthus.

Resources

BOOKS

Bratman, Steven, and David Kroll. *Natural Health Bible*. CA: Prima Publishing, 1999.
Feinstein, Alice. *Prevention's Healing with Vitamins*. PA: Rodale Press, 1996.
Griffith, H. Winter. *Vitamins, Herbs, Minerals & Supplements: The Complete Guide*. AZ: Fisher Books, 1998.
Jellin, Jeff, Forrest Batz, and Kathy Hitchens. *Pharmacist's letter/Prescriber's Letter Natural Medicines Comprehensive Database*. CA: Therapeutic Research Faculty, 1999.
Pressman, Alan H., and Sheila Buff. *The Complete Idiot's Guide to Vitamins and Minerals*. New York: Alpha Books, 1997.

Judith Turner

Vitamin E

Description

Vitamin E is an antioxidant responsible for proper functioning of the immune system and for maintaining healthy eyes and skin. It is actually a group of fat soluble compounds known as tocopherols (i.e., alpha tocopherol and gamma tocopherol). Gamma tocopherol accounts for approximately 75% of dietary vitamin E. Vitamin E rich foods include nuts, cereals, beans, eggs, cold-pressed oils, and assorted fruits and vegetables. Because vitamin E is a fat soluble vitamin, it requires the presence of fat for proper absorption. Daily dietary intake of the recommended daily allowance (RDA) of vitamin E is recommended for optimum health.

Vitamin E is absorbed by the gastrointestinal system and stored in tissues and organs throughout the body. Certain health conditions may cause vitamin E depletion, including liver disease, **celiac disease**, and cystic fibrosis. Patients with end-stage renal disease (kidney failure) who are undergoing chronic dialysis treatment may be at risk for vitamin E deficiency. These patients frequently receive intravenous infusions of **iron** supplements which can act against vitamin E.

Vitamin E deficiency can cause **fatigue**, concentration problems, weakened immune system, **anemia**, and low thyroid levels. It may also cause vision problems and irritability. Low serum (or blood) levels of vitamin E have also been linked to major **depression**.

General use

Vitamin E is necessary for optimal immune system functioning, healthy eyes, and cell protection throughout the body. It has also been linked to the prevention of a number of diseases. The therapeutic benefits of vitamin E include:

- Cancer prevention and treatment. Vitamin E is a known antioxidant, and has been associated with a reduced risk of gastrointestinal, cervical, prostate, lung, and possibly breast cancer. In addition to its role as a cancer preventive, vitamin E is being studied as a cancer treatment. It has been shown to inhibit the growth of prostate tumors and to induce apoptosis (cell self-destruction) in cancer cells. Vitamin E is also being investigated as an adjunctive treatment for cancer patients undergoing radiation therapy; it is thought that high doses of dietary antioxidants may increase the efficacy of the radiation treatment while protecting healthy cells against damage.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Recommended dietary allowance of vitamin E

Age	IU/day	mg/day
Children 0-6 mos.	6.0 IU (AI)	4 mg (AI)
Children 7-12 mos.	7.5 IU (AI)	5 mg (AI)
Children 1-3 yrs.	9.0 IU	6 mg
Children 4-8 yrs.	10.5 IU	7 mg
Children 9-13 yrs.	16.5 IU	11 mg
Children 14-18 yrs.	22.5 IU	15 mg
Adult ≥ 19 yrs.	22.5 IU	15 mg
Pregnant women	22.5 IU	15 mg
Breastfeeding women	28.5 IU	19 mg

Foods that contain vitamin E	IU/day	mg/day
Wheat germ oil, 1 tbsp.	30.5	20.3
Almonds, roasted, 1 oz.	11	7.4
Sunflower oil, 1 tbsp.	8.5	5.6
Hazelnuts, roasted,1 oz.	6.5	4.3
Peanut butter, fortified, 1 oz.	6	4.2
Safflower oil, 1 tbsp.	6	4.6
Avacado, 1 med.	5	3.4
Olive oil, 1 tbsp.	3	1.9
Peanuts, roasted, 1 oz.	3	2.2
Spinach, raw, 1/2 cup	3	1.8
Spinach, cooked, 1/2 cup	2.5	1.6
Kiwi, 1 med.	1.5	1.1
Mango, sliced, 1/2 cup	1.5	0.9

AI = Adequate Intake
IU = International Unit
mg = milligram

(Illustration by GGS Information Services. Cengage Learning, Gale)

- Immune system protection. Various studies have shown that vitamin E supplementation, particularly in elderly patients, boosts immune system function. Older patients have demonstrated improved immune response, increased resistance to infections, and higher antibody production. Vitamin E has also been used with some success to slow disease progression in HIV-positive patients.
- Eye disease prevention. Clinical studies on vitamin E have shown that supplementation significantly reduces the risk for cataracts and for macular degeneration, particularly among women.
- Memory loss prevention. Vitamin E deficiency has been linked to poor performance on memory tests in some elderly individuals.
- Alzheimer's disease (AD) treatment. In a study performed at Columbia University, researchers found that Alzheimer's patients who took daily supplements of vitamin E maintained normal functioning longer than patients who took a placebo. In 2002, a group of Dutch epidemiologists reported on a much larger population-based study conducted in the Netherlands between 1990 and 1993, with follow-up examinations in 1994 and 1999. The study confirmed the findings of the Columbia researchers, that high dietary intake of vitamin E lowers the risk of developing AD.
- Liver disease treatment. Vitamin E may protect the liver against disease.
- Diabetes treatment. Vitamin E may help diabetic patients process insulin more effectively. It has also been found to be effective in the treatment of diabetic neuropathy, a family of nerve disorders caused by diabetes. Vitamin E appears to reduce the symptoms of diabetic neuropathy and to improve the speed of transmission of nerve impulses.
- Pain relief. Vitamin E acts as both an anti-inflammatory and analgesic (or pain reliever). Studies have indicated it may be useful for treatment of arthritis pain in some individuals.
- Parkinson's disease prevention. High doses of vitamin E intake was associated with a lowered risk of developing Parkinson's disease in one 1997 Dutch study.
- Tardive dyskinesia treatment. Individuals who take neuroleptic drugs for schizophrenia or other disorders may suffer from a side effect known as tardive dyskinesia, in which they experience involuntary muscle contractions or twitches. Vitamin E supplementation may lessen or eliminate this side effect in some individuals.
- Porphyria treatment. Vitamin E has been found to be beneficial in treating patients with porphyria, a group of disorders characterized by abnormalities in the metabolism of blood pigments, by lowering the level of excretion of these blood pigments in the urine.

Other benefits of vitamin E are less clear cut, and have been called into question with conflicting study results or because of a lack of controlled studies to support them. These include:

- Heart disease prevention. A number of epidemiological studies have indicated that vitamin E may prevent heart disease by lowering total blood cholesterol levels and preventing oxidation of LDL cholesterol. However, a large, controlled study known as the Heart Outcomes Prevention Evaluation (HOPE) published in early 2000 indicates that vitamin E does not have any preventative effects against heart disease. The study followed 9,500 individuals who were considered to be at a high risk for heart disease. Half the individuals were randomly chosen to receive vitamin E supplementation, and the other half of the study population received a placebo. After five years,

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

there was no measurable difference in heart attacks and heart disease between the two patient populations. Still, vitamin E may still hold some hope for heart disease prevention. It is possible that a longer-term study beyond the five years of the HOPE study may demonstrate some heart protective benefits of vitamin E consumption. It is also possible that while the high-risk patient population that was used for the HOPE study did not benefit from vitamin E, an average-risk patient population might still benefit from supplementation. It is also possible that vitamin E needs the presence of another vitamin or nutrient substance to protect against heart disease. Further large, controlled, and long-term clinical studies are necessary to answer these questions.

- Skin care. Vitamin E is thought to increase an individual's tolerance to UV rays when taken as a supplement in conjunction with vitamin C. Vitamin E has also been touted as a treatment to promote faster healing of flesh wounds. While its anti-inflammatory and analgesic properties may have some benefits in reducing swelling and relieving discomfort in a wound, some dermatologists dispute the claims of faster healing, and there are no large controlled studies to support this claim.
- Hot flashes. In a small study conducted at the Mayo Clinic, researchers found that breast cancer survivors who suffered from hot flashes experienced a decrease in those hot flashes after taking vitamin E supplementation.
- Muscle maintenance and repair. Recent research has demonstrated that the antioxidative properties of vitamin E may prevent damage to tissues caused by heavy endurance exercises. In addition, vitamin E supplementation given prior to surgical procedures on muscle and joint tissues has been shown to limit reperfusion injury (muscle damage which occurs when blood flow is stopped, and then started again to tissues or organs).
- Fertility. Vitamin E has been shown to improve sperm function in animal studies, and may have a similar effect in human males. Further studies are needed to establish the efficacy of vitamin E as a treatment for male infertility; as of 2002, its role in such treatment is still controversial.

Preparations

The U.S. recommended dietary allowance (RDA) of the alpha-tocopherol formulation of vitamin E is as follows:

- men: 10 mg or 15 IU
- women: 8 mg or 12 IU
- pregnant women: 10 mg or 15 IU
- lactating women: 12 mg or 18 IU

KEY TERMS

Antioxidants—Enzymes that bind with free radicals to neutralize their harmful effects.

Apoptosis—A process of programmed cell death or cell self-destruction. Vitamin E is thought to induce apoptosis in cancer cells.

Contact dermatitis—Inflammation, redness, and irritation of the skin caused by an irritating substance.

Epidemiological study—A study which analyzes health events and trends in particular patient populations.

Free radicals—Reactive molecules created during cell metabolism that can cause tissue and cell damage like that which occurs in aging and with disease processes such as cancer.

Macular degeneration—Degeneration, or breakdown, of the retina that can lead to partial or total blindness.

Non-heme iron—Dietary or supplemental iron that is less efficiently absorbed by the body than heme iron (ferrous iron).

Reperfusion—The reintroduction of blood flow to organs or tissues after blood flow has been stopped for surgical procedures.

Vitamin A—An essential vitamin found in liver, orange and yellow vegetables, milk, and eggs that is critical for proper growth and development.

Vitamin K—A fat-soluble vitamin responsible for blood clotting, bone metabolism, and proper kidney function.

In April 2000, the National Academy of Sciences recommended changing the RDA for vitamin E to 22 international units (IUs), with an upper limit (UL), or maximum daily dose, of 1500 IUs. Daily values for the vitamin as recommended by the U.S. Food and Drug Administration, the values listed on food and beverage labeling, remain at 30 IUs for both men and women age four and older.

Many nuts, vegetable-based oils, fruits, and vegetables contain vitamin E. Foods rich in vitamin E include **wheat germ** oil (26.2 mg/tbsp), wheat germ cereal (19.5 mg/cup), peanuts (6.32 mg/half cup), soy beans (3.19 mg/cup), corn oil (2.87/tbsp), avocado (2.69 mg), and olive oil (1.68 mg/tbsp). Grapes, peaches, broccoli, Brussels sprouts, eggs, tomatoes, and blackberries are also good sources of vitamin E. Fresh, raw foods contain the highest levels of the

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

vitamin. Both heat and light can reduce vitamin and mineral potency in fresh foods, so overcooking and improper storage should be avoided. Sliced and chopped foods have more of their surface exposed to light, therefore keeping vegetables and fruits whole may also help to maintain full vitamin potency.

For individuals considered at risk for vitamin E deficiency, or those with an inadequate dietary intake, vitamin E supplements are available in a variety of different forms, including pills, capsules, powders, and liquids for oral ingestion. For topical use, vitamin E is available in ointments, creams, lotions, and oils. Vitamin E is also available commercially as one ingredient of a multivitamin formula.

The recommended daily dosage of vitamin E varies by individual need and by the amount of polyunsaturated fats an individual consumes. The more polyunsaturated fats in the diet, the higher the recommended dose of vitamin E, because vitamin E helps to prevent the oxidizing effects of these fats. Because vitamin E is fat soluble, supplements should always be taken with food.

Supplements are also available in either natural or synthetic formulations. Natural forms are extracted from wheat germ oil and other vitamin E food sources, and synthetic forms are extracted from petroleum oils. Natural formulas can be identified by a "d" prefix on the name of the vitamin (i.e., d-alpha-tocopherol).

Precautions

Overdoses of vitamin E (over 536 mg) can cause **nausea**, **diarrhea**, **headache**, abdominal **pain**, bleeding, high blood pressure, fatigue, and weakened immune system function.

Patients with rheumatic **heart disease**, iron deficiency anemia, **hypertension**, or thyroid dysfunction should consult their healthcare provider before starting vitamin E supplementation, as vitamin E may have a negative impact on these conditions.

Side effects

Vitamin E is well-tolerated, and side effects are rare. However, in some individuals who are **vitamin K** deficient, vitamin E may increase the risk for hemorrhage or bleeding. In some cases, side effects may be decreased or eliminated by adjusting the dosage of vitamin E and vitamin K.

Although the reasons are not yet clear, high intake of vitamin E has been associated with a statistically significant increased risk of **breast cancer** in men.

Vitamin E ointments, oils, or creams may trigger an allergic reaction known as **contact dermatitis**. Individuals who are considering using topical vitamin E preparations for the first time, or who are switching the type of vitamin E product they use, should perform a skin patch test to check for skin sensitivity to the substance. A small, dime sized drop of the product should be applied to a small patch of skin inside the elbow or wrist. The skin patch should be monitored for 24 hours to ensure no excessive redness, irritation, or rash occurs. If a reaction does occur, it may be in response to other ingredients in the topical preparation, and the test can be repeated with a different vitamin E formulation. Individuals who experience a severe reaction to a skin patch test of vitamin E are advised not to use the product topically. A dermatologist or other healthcare professional may be able to recommend a suitable alternative.

Interactions

Individuals who take anticoagulant (blood thinning) or anticonvulsant medications should consult their healthcare provider before starting vitamin E supplementation. Vitamin E can alter the efficacy of these drugs.

It is important for persons taking supplemental vitamin E to tell their surgeon if they are scheduled for an operation. Vitamin E may interact with some of the medications given prior to or during surgery; it has also been shown to increase bleeding time if the patient is taking such other herbal preparations as **feverfew** or gingko biloba.

Non-heme, inorganic iron supplements destroy vitamin E, so individuals taking iron supplements should space out their doses (e.g., iron in the morning and vitamin E in the evening).

Large doses of **vitamin A** can decrease the absorption of vitamin E, so dosage adjustments may be necessary in individuals supplementing with both vitamins.

Alcohol and mineral oil can also reduce vitamin E absorption, and these substances should be avoided if possible in vitamin E deficient individuals.

Resources

BOOKS

Reavley, Nocola. *The New Encyclopedia of Vitamins, Minerals, Supplements, and Herbs.* New York: M. Evans & Company, 1998.

PERIODICALS

Bolle, P., M. G. Evandri, and L. Saso. "The Controversial Efficacy of Vitamin E for Human Male Infertility." *Contraception* 65 (April 2002): 313-315.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Bonner, L. T., and E. R. Peskind. "Pharmacologic Treatments of Dementia." *Medical Clinics of North America* 86 (May 2002): 657-674.

Collins, S. C., R. G. Dufresne Jr. "Dietary Supplements in the Setting of Mohs Surgery." *Dermatologic Surgery* 28 (June 2002): 447-452.

Engelhart, M. J., M. I. Geerlings, A. Ruitenberg, et al. "Dietary Intake of Antioxidants and Risk of Alzheimer Disease." *Journal of the American Medical Association* 287 (June 26, 2002): 3261-3263.

Johnson, K. C., S. Pan, and Y. Mao. "Risk Factors for Male Breast Cancer in Canada, 1994-1998." *European Journal of Cancer Prevention* 11 (June 2002): 253-263.

Pinelli, A., S. Trivulzio, L. Tomasoni, et al. "High-Dose Vitamin E Lowers Urine Porphyrin Levels in Patients Affected by Porphyria Cutanea Tarda." *Pharmacological Research* 45 (April 2002): 355-359.

Prasad, K. N., W. C. Cole, B. Kumar, and K. Che Prasad. "Pros and Cons of Antioxidant Use During Radiation Therapy." *Cancer Treatment Review* 28 (April 2002): 79-91.

Sytze Van Dam, P. "Oxidative Stress and Diabetic Neuropathy: Pathophysiological Mechanisms and Treatment Perspectives." *Diabetes/Metabolism Research and Reviews* 18 (May-June 2002): 176-184.

"Vitamin E: E for Exaggerated?" *Harvard Health Letter* 25, no. 5 (March 2000): 6(3p).

Yu, A., P. Somasundar, A. Balsubramaniam, et al. "Vitamin E and the Y4 Agonist BA-129 Decrease Prostate Cancer Growth and Production of Vascular Endothelial Growth Factor." *Journal of Surgical Research* 105 (June 1, 2002): 65-68.

ORGANIZATIONS

American Dietetic Association. 216 West Jackson Blvd., Chicago, IL 60606. (312) 899-0040. http://www.eatright.org.

United States Department of Agriculture. Center for Nutrition Policy and Promotion. 1120 20th Street NW, Suite 200, North Lobby, Washington, D.C. 20036. (202) 418-2312. http://www.usda.gov/cnpp.

United States Food and Drug Administration (FDA). 5600 Fishers Lane, Rockville, MD 20857. (888) 463-6332. http://www.fda.gov.

Paula Ford-Martin
Rebecca J. Frey, PhD

Vitamin H *see* **Biotin**

Vitamin K

Description

Vitamin K originates from the German term *koagulation*. It is also known as antihemorrhagic factor and is one of the four fat-soluble vitamins necessary for good health. The others are vitamins A, D, and E. The primary and best-known purpose of vitamin K is support of the process of blood clotting. Prothrombin and other clotting factors are dependent on vitamin K for production. It also plays a role in bone health, and may help to prevent **osteoporosis**. Appropriate growth and development are supported by adequate vitamin K.

There are several forms of the vitamin:

- K_1 or phylloquinone; also known as phytonadione
- K_2, a family of substances called menaquinones
- K_3 or menadione, a synthetic form of this vitamin

Adequate intake of vitamin K

Age	mcg/day
Children 0-6 mos.	2
Children 7-12 mos.	2.5
Children 1-3 yrs.	30
Children 4-8 yrs.	55
Children 9-13 yrs.	60
Children 14-18 yrs.	75
Men ≥ 19 yrs.	120
Women ≥ 19 yrs.	90
Pregnant women ≤18 yrs.	75
Breastfeeding women ≤18 yrs.	75
Pregnant women ≥19 yrs.	90
Breastfeeding women ≥19 yrs.	90

Foods that contain vitamin K	mcg
Kale, cooked, 1/2 cup	530
Spinach, cooked, 1/2 cup	445
Swiss chard, cooked, 1/2 cup	285
Turnip greens, cooked, 1/2 cup	265
Parsley, fresh, 2 tbsp.	120
Brussel sprouts, cooked, 1/2 cup	110
Broccoli, cooked, 1/2 cup	77
Asparagus, cooked, 1/2 cup	46
Celery, raw, 1/2 cup	18
Carrots, raw, 1/2 cup	8
Milk, 2%, 1 cup	5
Miso, 1 oz.	4

mcg = microgram

(Illustration by GGS Information Services. Cengage Learning, Gale)

General use

The Required Daily Amount (RDA) of vitamin K is 5 micrograms (mcg) for infants less than six months

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

old, 10 mcg for babies six months to one year old, 15 mcg for children aged one to three years, 20 mcg for those aged four to six years, and 30 mcg for those seven to ten years old. Males require 45 mcg from 11–14 years, 65 mcg from 15–18 years, 70 mcg from 19–24 years, and 80 mcg after the age of 24 years. Females need 45 mcg from 11–14 years, 55 mcg from 15–18 years, 60 mcg from 19–24 years, and 65 mcg after the age of 24, and for pregnant or lactating women. These values are based on an estimate of 1 mcg of vitamin K per kilogram of body weight.

The most common use of vitamin K is to supplement babies at birth, thus preventing hemorrhagic disease of the newborn. Routine administration of vitamin K to newborns is, however, being questioned by practitioners of evidence-based nursing. In 2003 the American Academy of Pediatrics (AAP) restated that prevention of bleeding from early vitamin K deficiency by administration of the vitamin is accepted practice. The AAP also noted that a possible link between supplemental vitamin K and early childhood **cancer** has not been proven as of 2003.

Others who may benefit from supplemental vitamin K include those taking medications that interact with the vitamin or deplete its supply. It also appears to have some effectiveness in preventing osteoporosis, but some studies done involved patients using a high dietary intake of the vitamin rather than supplements. In 2003, however, a group of Japanese researchers reported that supplemental doses of vitamin K_2 given together with vitamin D_3 appeared to reduce bone turnover and sustain bone density in postmenopausal women with mild osteoporosis.

People taking warfarin, a vitamin K antagonist, are able to use the vitamin as an antidote if the serum level of warfarin is too high, increasing the risk of hemorrhage. Vitamin K taken by mouth appears to be more effective than intramuscular injections of the vitamin when it is used to counteract the effects of warfarin.

Vitamin K is also used to treat bleeding from the esophagus and other complications of **cirrhosis**, a disease of the liver.

Some women find that supplemental vitamin K relieves the symptoms of **morning sickness** during **pregnancy**. This treatment is even more effective if vitamin K is taken together with **vitamin C**.

Topical formulations of vitamin K are sometimes touted as being able to reduce spider veins on the face and legs. The creams are quite expensive and the efficacy is questionable at best. However, recent clinical studies have shown that topical applications of vitamin K given to patients following laser treatments on the face are effective in minimizing bruising from the procedure.

More recently, researchers have been studying vitamin K intensively for its potential anticancer effects. Vitamin K_3 in particular may be useful as an adjuvant treatment for **ovarian cancer**.

KEY TERMS

Adjuvant—Auxiliary or supplementary. An adjuvant treatment is one given to aid or assist the effects of other forms of therapy.

Anticoagulant—Substance that inhibits clotting, used therapeutically for such things as stroke prevention in susceptible people.

Bilirubin—When gathered in large amounts, this water-insoluble pigment occurs in bile and blood.

Hemolytic anemia—A blood disorder characterized by destruction of red blood cells.

Hemorrhage—Excessive bleeding.

Phylloquinone—An alternate name for vitamin K_1.

Phytonadione—Another name for vitamin K_1. It is the form of vitamin K most often used to treat patients on anticoagulant therapy.

Prothrombin—One protein component of the cascade reaction which results in clot formation.

Topical—A type of medication that is applied to the skin or other outer surface of the body.

Preparations

Natural sources

Dark green leafy vegetables are among the best food sources of vitamin K in the form of K_1. Seaweed is packed with it, and beef liver, cauliflower, eggs, and strawberries are rich sources as well. Vitamin K is fairly heat-stable, but gentle cooking preserves the content of other nutrients that are prone to breaking down when heated. Some of the supply for the body is synthesized as vitamin K_2 by the good bacteria in the intestines.

Supplemental sources

Vitamin K is not normally included in daily multivitamins, as deficiency is rare. Oral, topical, and injectable forms are available, but should not be used except under the supervision of a health care provider. Injectable forms are by prescription only. Supplements are

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

generally given in the form of phytonadione since it is the most effective form and has a lower risk of toxicity than other types. Synthetic forms of vitamin K are also available for supplemental use.

Deficiency

Deficiency of vitamin K is uncommon in the general population but is of particular concern in neonates, who are born with low levels of vitamin K. Hemorrhagic disease of the newborn can affect infants who do not receive some form of vitamin K at birth. Affected babies tend to have prolonged and excessive bleeding following circumcision or blood draws. In the most serious cases, bleeding into the brain may occur. Most commonly an injection of vitamin K is given in the nursery following birth, but a series of oral doses is also occasionally used. The primary sign of a deficiency at any age is bleeding, and poor growth may also be observed in children.

Chronically low levels of vitamin K are correlated with higher risk of hip fracture in older men and women. A study done in 2003 reported that the current recommended dietary intake for vitamin K in adults may not be adequate for older women.

Risk factors for deficiency

Vitamin K deficiency is unusual, but may occur in certain populations, including those on the medications mentioned in interactions, alcoholics, and people with diseases of the gastrointestinal tract that impair absorption. Conditions that may be problematic include **Crohn's disease**, chronic **diarrhea**, sprue, and ulcerative **colitis**. Anything that impairs fat absorption also risks decreasing the absorption of the fat-soluble vitamins. Long term use of broad spectrum antibiotics destroys the bacteria in the intestinal tract that are necessary for the body's production of vitamin K.

Precautions

Allergic reactions to vitamin K supplements can occur, although they are rare. Symptoms may include flushed skin, **nausea**, rash, and **itching**. Medical attention should be sought if any of these symptoms occur. Infants receiving vitamin K injections occasionally suffer hemolytic **anemia** or high bilirubin levels, noticeable from the yellow cast of the skin. Emergency medical treatment is needed for these babies. Liver and brain impairment are possible in severe cases.

Certain types of liver problems necessitate very cautious use of some forms of vitamin K. Menadiol **sodium** diphosphate, a synthetic form also known as vitamin K_4, may cause problems in people with biliary fistula or obstructive **jaundice**. A particular metabolic disease called G6-PD deficiency also calls for careful use of vitamin K_4. The expertise of a health care professional is called for under these circumstances. Sheldon Saul Hendler, MD, PhD, advises there is no reason to supplement with more than 100 mcg daily except in cases of frank vitamin K deficiency.

Side effects

Oral forms of vitamin K_4 may occasionally irritate the gastrointestinal tract. High doses greater than 500 mcg daily have been reported to cause some allergic-type reactions, such as skin **rashes**, itching, and flushing.

Interactions

There are numerous medications that can interfere with the proper absorption or function of vitamin K. The long-term use of antacids may decrease the efficacy of the vitamin, as can certain anticoagulants. Warfarin is an anticoagulant that antagonizes vitamin K. Efficacy of the vitamin is also decreased by dactinomycin and sucralfate. Absorption is decreased by cholestyramine and colestipol, which are drugs used to lower blood **cholesterol** levels. Other drugs that may cause a deficiency include long-term use of mineral oil, quinidine, and sulfa drugs. Primaquine increases the risk of side effects from taking supplements.

Other types of prescription medications that may cause vitamin K depletion include anticonvulsants (drugs to prevent seizures), including valproic acid; macrolide, aminoglycoside, cephalosporin, and fluoroquinolone antibiotics; phenobarbital; and dapsone (used to treat leprosy and skin **infections**).

Resources

BOOKS

Bratman, Steven, and David Kroll. *Natural Health Bible*. Rocklin, CA: Prima Publishing, 1999.

Griffith, H. Winter. *Vitamins, Herbs, Minerals & Supplements: The Complete Guide*. AZ: Fisher Books, 1998.

Jellin, Jeff, Forrest Batz, and Kathy Hitchens. *Pharmacist's letter/Prescriber's Letter Natural Medicines Comprehensive Database*. CA: Therapeutic Research Faculty, 1999.

Pelletier, Kenneth R., MD. *The Best Alternative Medicine, Part I: Food for Thought*. New York: Simon & Schuster, 2002.

Pressman, Alan H., and Sheila Buff. *The Complete Idiot's Guide to Vitamins and Minerals*. New York: Alpha Books, 1997.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

PERIODICALS

American Academy of Pediatrics Committee on Fetus and Newborn. "Controversies Concerning Vitamin K and the Newborn. American Academy of Pediatrics Committee on Fetus and Newborn." *Pediatrics* 112 (July 2003) (1 Pt 1): 191–192.

Booth, S. L., L. Martini, J. W. Peterson, et al. "Dietary Phylloquinone Depletion and Repletion in Older Women." *Journal of Nutrition* 133 (August 2003): 2565–2569.

Crowther, M. A., J. D. Douketis, T. Schnurr, et al. "Oral Vitamin K Lowers the International Normalized Ratio More Rapidly Than Subcutaneous Vitamin K in the Treatment of Warfarin-Associated Coagulopathy. A Randomized, Controlled Trial." *Annals of Internal Medicine* 137 (August 20, 2002): 251-254.

Iwamoto, J., T. Takeda, and S. Ichimura. "Treatment with Vitamin D_3 and/or Vitamin K_2 for Postmenopausal Osteoporosis." *Keio Journal of Medicine* 52 (September 2003): 147–150.

Lamson, D. W., and S. M. Plaza. "The Anticancer Effects of Vitamin K." *Alternative Medicine Review* 8 (August 2003): 303–318.

Libby, E. N., and D. A. Garcia. "A Survey of Oral Vitamin K Use by Anticoagulation Clinics." *Archives of Internal Medicine* 162 (September 9, 2002): 1893-1896.

Lucena, M. I., R. J. Andrade, G. Tognoni, et al. "Multicenter Hospital Study on Prescribing Patterns for Prophylaxis and Treatment of Complications of Cirrhosis." *European Journal of Clinical Pharmacology* 58 (September 2002): 435-440.

Medves, J. M. "Three Infant Care Interventions: Reconsidering the Evidence." *Journal of Obstetric, Gynecologic, and Neonatal Nursing* 31 (September-October 2002): 563-569.

Shah, N. S., M. C. Lazarus, R. Bugdodel, et al. "The Effects of Topical Vitamin K on Bruising After Laser Treatment." *Journal of the American Academy of Dermatology* 47 (August 2002): 241-244.

von Gruenigen, V. E., J. M. Jamison, J. Gilloteaux, et al. "The in vitro Antitumor Activity of Vitamins C and K_3 Against Ovarian Carcinoma." *Anticancer Research* 23 (July-August 2003): 3279–3287.

ORGANIZATIONS

American Academy of Pediatrics (AAP). 141 Northwest Point Boulevard, Elk Grove Village, IL 60007. (847) 434-4000. http://www.aap.org.

American Society for Clinical Nutrition. 9650 Rockville Pike, Bethesda, MD 20814. (301) 530-7110. http://www.faseb.org/ascn.

American Society of Hematology (ASH). 1900 M Street, NW, Suite 200, Washington, DC 20036. (202) 776-0544. http://www.hematology.org.

Judith Turner
Rebecca J. Frey, PhD

Vitex *see* **Chasteberry tree**

Vomiting

Definition

Vomiting is the forceful discharge of stomach contents through the mouth.

Description

Vomiting, also called emesis, is a symptomatic response to any number of harmful triggers. Vomiting is a forceful expulsion, and is different from regurgitation—the effortless return of stomach contents to the mouth. Although unpleasant, vomiting is an important function because it rids the body of harmful substances.

Vomiting is a complex process resulting from the coordinated interaction of nerve pathways, the brain, and muscles of the gastrointestinal system. The primary vomiting trigger point in the brain is called the area postrema. This structure is exposed to chemicals in the blood stream and the cerebrospinal fluid (the fluid found in the brain and spinal cord). Scientific studies have shown that stimulation of the area postrema by a wide variety of drugs as well as bacterial toxins, radiation, and physiologic conditions, induces vomiting.

Certain nerve pathways (called afferent neural pathways) induce vomiting when triggered by motion, ear **infections** or tumors, **Ménière's disease** (a disease characterized by recurrent vertigo), odors, visual stimulation, **pain**, and bad tastes. Still other nerve pathways (peripheral afferent neural pathways) induce vomiting in response to stomach irritants, distension of the intestines and bile ducts, abdominal inflammation, and myocardial infarction (**heart attack**).

The physical act of vomiting is controlled by multiple sites of the brain stem. When activated, these structures send signals to the throat, diaphragm, and abdominal muscles. These signals result in the simultaneous contraction of these muscles which brings the stomach contents up through the esophagus (the tube between the stomach and the throat) and out the mouth. During vomiting, breathing is inhibited, except for short breaths between discharges. Bradycardia (decrease in the heart rate) and changes in blood pressure may occur during retching and vomiting.

Causes and symptoms

Vomiting can be caused by many different things. Vomiting that lasts only one or two days is usually

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Area postrema—A structure of the brain stem that triggers vomiting in response to toxins in the bloodstream and cerebrospinal fluid.

Emesis—The medical term for vomiting.

Retching—The coordinated contraction of muscles as for vomiting but without the discharge of stomach contents.

Vomitus—The medical term for the contents of the stomach expelled during vomiting.

caused by infection, a reaction to medication, a toxin, uremia (accumulation of protein breakdown products in the bloodstream), and diabetic ketoacidosis (accumulation of toxins resulting from uncontrolled diabetes). Vomiting that lasts longer than one week can be caused by a long-term medical or psychiatric condition. Causes of vomiting include:

- Medications. Drugs are the most common cause of vomiting, especially during the first days of use. Drugs can induce vomiting by stimulation of the area postrema or by direct stimulation of peripheral nerve pathways. Medications that commonly cause vomiting include cancer drugs, pain relievers (especially opioids), heart medications, diuretics, hormones, antibiotics, antiasthmatics, gastrointestinal drugs, and medications that act on the brain.
- Infections. Infections of the gastrointestinal system or whole body can cause vomiting. Gastrointestinal infections are more common in infants, toddlers, and young adults (20–29 years old) who usually get 1.2 infections each year. Infections that can cause vomiting include bacterial, viral, and parasitic gastrointestinal infections, severe acute respiratory syndrome (SARS), otitis media (ear infection), meningitis (infection of the membrane that surrounds the brain and spinal cord), and hepatitis (infection of the liver).
- Gastrointestinal and abdominal disorders. Disorders of the gastrointestinal system that can produce vomiting include blockage of the stomach or small intestine, motility disorders (muscles in the esophagus become discoordinated or weak, causing difficulty swallowing, regurgitation, and sometimes pain), indigestion, radiation therapy-induced changes, Crohn's disease (chronic recurrent inflammation of the intestines), peptic ulcer, worm infestations, or inflammation of the appendix, gall bladder, or pancreas.
- Nervous system disorders. Cancers, infarction (an area of dead tissue caused by an obstruction in the artery supplying the area), bleeding (hemorrhage), birth defects, ear disorders, motion sickness, weightlessness, ear tumors, Ménière's disease, unpleasant memories, psychogenic (caused by mental factors) vomiting, and bad tastes or smells can all cause vomiting.
- Hormones and physiological conditions. Hormonal and metabolic (physical and chemical processes of the body) conditions that can cause vomiting include: parathyroidism, diabetic ketoacidosis, hyperthyroidism (condition caused by excessive ingestion or production of thyroid hormone), Addison's disease, uremia, and pregnancy. Pregnancy is the most common cause of vomiting associated with the hormonal system. Vomiting associated with pregnancy is often called morning sickness.
- Postoperation. Anesthesia and pain medications can cause nausea and vomiting, which are complications associated with 17–39% of surgeries.
- Cyclic vomiting syndrome (CVS). This rare disorder occurs in children usually beginning at age five years, although it also occurs in adults. It is characterized by, on average, eight attacks of vomiting lasting for 20 hours each year. Although the exact cause is unknown, there seems to be a relationship between cyclic vomiting and migraine headaches.
- Poisons. Arsenic and other heavy metals, weed killers and household cleaning agents, and many other substances may cause vomiting if inhaled or swallowed.
- Miscellaneous causes. Excessive alcohol consumption causes vomiting by acting both on the gastrointestinal tract and the brain.

Nausea is often associated with vomiting. Vomiting may be preceded by retching, in which the muscles contract as for vomiting but without the discharge of stomach contents. The patient may hyperventilate (rapid, deep breathing) and salivate before vomiting begins. Patients should consult a physician immediately if there is blood in the vomitus (expelled stomach contents).

Other symptoms associated with vomiting depend upon the cause. Gastrointestinal infection would also cause **fever**, muscle pain, and **diarrhea**. Patients with peptic ulcer, intestinal blockage, cholecystitis, or **pancreatitis** (inflammation of the gall bladder or pancreas) would experience abdominal pain. **Meningitis** symptoms include neck stiffness, **headache**, vision changes, and changes in mental processes.

Diagnosis

Vomiting may be diagnosed by an internal medicine specialist or a gastroenterologist. A detailed medical history will be taken and will include specifics

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

about the vomiting including frequency, a description of the vomitus, duration, how soon after meals vomiting occurs, and any other symptoms. The history alone can help the physician to narrow down the possible causes. The patient's abdomen will be palpated (felt with the hands) to detect any abnormalities. Vital signs will be taken to identify any abnormalities in heart rate, blood pressure, or temperature.

Although the medical history and physical exam is usually sufficient to determine the cause of vomiting, certain laboratory tests may also be performed. Blood tests may be performed to check for dehydration (decreased water), **anemia** (decreased number of red blood cells or iron-poor blood), and electrolyte (blood chemicals) imbalances, as well as specific tests to confirm the suspected diagnosis.

In some cases, more advanced testing may be required. These include x rays, endoscopy (a thin, wand-like camera used to visualize internal organs), magnetic resonance imaging (MRI), ultrasound (using sound waves to visualize internal organs), and computed tomography (CT) scanning. In addition, there are tests that measure stomach emptying and the pressure and motility of the stomach and intestine.

Treatment

Alternative treatments can be effective in treating vomiting, but not the underlying cause. A physician should be consulted if vomiting is recurrent and/or lasts for more than a few days.

Dietary changes

The best dietary approach is to eat foods that can be quickly cleared from the stomach. Foods that are high in fat are slow to digest and place the patient at risk for additional vomiting. Ingestion of a low-fat, predominately liquid diet taken in frequent small meals can help relieve vomiting. Dry soda crackers are a good choice when nausea sets in. After vomiting, the patient should not eat for one hour, after which small servings of broth, bread, or flat soda may be eaten. It is important to replenish the fluids lost by vomiting. Juice therapists recommend drinking a juice made from fresh **ginger**, apples, and carrots. Supplementation with vitamin B_6 was found to reduce the symptoms of **morning sickness** in pregnant women.

Herbals

The herbs that are effective in relieving nausea and vomiting include:

- apple tree (*Pyrus malus*) bark tea
- bergamot (*Monarda citriodora*) tea
- black horehound (*Ballota nigra*) infusion
- codonopsis (*Codonopsis pilosula*) decoction
- galangal (*Alpinia officinarum*) infusion
- ginger (*Zingiber officinale*) infusion or crystallized
- lemongrass (*Cymbogen citratus*) oil or tea
- nutmeg (*Myristica fragrans*) capsules
- turmeric (*Curcuma longa*) infusion

Chinese medicine

Practitioners of **traditional Chinese medicine** use **acupuncture**, ear acupuncture, herbals, and patent medicines in the treatment of vomiting. The following herbals may be made into soups which are sipped frequently: Lu Gen (*Rhizoma phragmitis*); Zhu Ru (*Caulis bambusae in taeniis*), Bai Mao Gen (*Rhizoma imperatae*), and Pi Pa Ye (*Folium eriobotryae*); and Huo Xiang (*Herba agastachis*) and Pei Lan (*Herba eupatorii*). Placing a drop of Sheng Jiang (*Rhizoma zingiberis recens*) on the tongue can check vomiting. Patent medicines used to treat vomiting include: Huo Xiang Zheng Qi Wan (**Agastache** Pill to Rectify Qi), Yu Shu Dan (Jade Pivot Pill), Zuo Jin Wan (Left Metal Pill), and Bao He Wan (Preserve Harmony Pill).

Homeopathy

Homeopathic remedies are chosen based upon the specific set of symptoms displayed by the patient. **Ipecac** is chosen for strong nausea and vomiting. Bismuth or Phosphorous is indicated when vomiting is caused primarily by liquids. Nux vomica is recommended when vomiting is caused by emotional **stress** and for patients with **heartburn**, nausea, and retching. Tabacum is indicated for vomiting caused by motion. Veratrum album is indicated for the patient with nausea, vomiting, and diarrhea. Arsenicum is recommended for the patient with violent vomiting, diarrhea, abdominal pain, exhaustion, restlessness, and thirst. **Bryonia** is recommended for **gastroenteritis** (inflammation of the lining of the gastrointestinal system).

Ayurveda

Ayurvedic practitioners believe that vomiting is caused by high pitta in the stomach. Remedies for vomiting are:

- yogurt containing cardamon and honey
- warm milk containing cardamon and nutmeg
- tea prepared from cumin seeds and nutmeg
- fresh pineapple juice (1 cup with a pinch of ginger and black pepper and 0.5 tsp sugar) three times during a day of fasting

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

- water containing 10 drops lime juice, 0.5 tsp sugar, and 0.25 tsp baking soda
- cardamon seeds (chewed)
- ginger juice and onion juice (1 tsp each)
- water containing rose petal powder (0.5 tsp), sandalwood powder (0.25 tsp), rock candy powder (0.5 tsp), and lime juice (10 drops)

Other treatments

Various other treatments for vomiting include:

- Aromatherapy. The essential oil of peppermint is a traditional cure for vomiting.
- Acupressure. The acupressure points P5 and P6 located on the inner forearms are effective in treating vomiting. A wristband (Sea-Band) has been proven to be effective in reducing nausea and vomiting.
- Acupuncture. A National Institutes of Health consensus panel found that acupuncture is an effective treatment for chemotherapy and postoperative vomiting. A few people, however, experience nausea as a side effect of acupuncture.
- Behavioral interventions. Behavioral therapies such as desensitization, distraction, imagery, relaxation, and self-hypnosis have been shown to be effective in treating chemotherapy-induced vomiting.
- Hydrotherapy. Stomach upsets may be treated by drinking a glass of water containing activated charcoal powder.
- Reflexology. The reflex points solar plexus, chest, lung, diaphragm, esophagus, liver, stomach, gallbladder and thyroid, and pituitary and adrenal gland on the feet may help treat vomiting.
- Transcutaneous electrical nerve stimulation (TENS, which is a treatment where a mild electrical current is passed through electrodes on the skin to stimulate nerves and block pain signals). TENS can be effective in reducing postoperative vomiting.

Allopathic treatment

Treatment of vomiting depends upon the cause and severity but may include dietary changes, medications, and surgery. Replacement of lost fluids is an important component of treatment. Hospitalization may be required in some cases. Surgery may be needed to treat inflammatory conditions (such as cholecystitis) and physical abnormalities (such as blockage).

Medications used to treat vomiting are called antiemetics. Scopolamine, dimenhydrinate (Dramamine), and hyoscine are used to treat **motion sickness**; promethazine (Mepergan, Phenergan) is used to treat postoperative nausea; meclizine (Antivert, Bonine) is used to treat inner ear inflammation; and prochlorperazine (Compazine) is used for gastroenteritis, postoperative toxins, radiation, medications, and others. Other medications that target the underlying cause of the vomiting may be used.

Newer drugs that have been developed to treat postoperative or postchemotherapy nausea and vomiting include ondansetron (Zofran) and granisetron (Kytril). Another treatment that has been found to lower the risk of nausea after surgery is intravenous administration of supplemental fluid before the operation.

Expected results

Most cases of vomiting resolve spontaneously. Complications of vomiting include dehydration, malnutrition, weight loss, and abnormalities of blood chemicals (including electrolytes, pH, and **potassium**). Vomiting by unconscious patients can lead to aspiration (inhalation of stomach contents) which can affect the lungs.

Prevention

Antiemetic drugs are effective at preventing vomiting. Some alternative treatments are effective at reducing nausea which may prevent vomiting.

Resources

BOOKS

Cummings, Stephen and Dana Ullman. *Everybody's Guide to Homeopathic Medicines: Safe and Effective Remedies for You and Your Family*. 3rd. edition. New York, NY: Jeremy P. Tarcher/Putnam, 1997.

"Functional Vomiting." Section 3, Chapter 21 in *The Merck Manual of Diagnosis and Therapy*, edited by Mark H. Beers, MD, and Robert Berkow, MD. Whitehouse Station, NJ: Merck Research Laboratories, 2002.

Hasler, William L. "Approach to the Patient with Nausea and Vomiting." *Textbook of Gastroenterology*. 3rd edition, edited by Tadataka Yamada, et al. Philadelphia, PA: Lippincott Williams & Wilkins, 1999.

Reichenberg-Ullman, Judyth, and Robert Ullman. *Homeopathic Self-Care: The Quick and Easy Guide for the Whole Family*. Rockland, CA: Prima Publishing, 1997.

Ying, Zhou Zhong, and Jin Hui De. Vomiting. *Clinical Manual of Chinese Herbal Medicine and Acupuncture*. New York: Churchill Livingston, 1997.

PERIODICALS

Ali, S. Z., A. Taguchi, B. Holtmann, and A. Kurz. "Effect of Supplemental Pre-Operative Fluid on Postoperative Nausea and Vomiting." *Anaesthesia* 58 (August 2003): 780–784.

Cepeda, M. S., J. T. Farrar, M. Baumgarten, et al. "Side Effects of Opioids During Short-Term Administration:

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Effect of Age, Gender, and Race." *Clinical Pharmacology and Therapeutics* 74 (August 2003): 102–112.

Chung, A., L. Bui, and E. Mills. "Adverse Effects of Acupuncture. Which Are Clinically Significant?" *Canadian Family Physician* 49 (August 2003): 985–989.

O'Brien, C. M., G. Titley, and P. Whitehurst. "A Comparison of Cyclizine, Ondansetron and Placebo as Prophylaxis Against Postoperative Nausea and Vomiting in Children." *Anaesthesia* 58 (July 2003): 707–711.

Quinla, J. D., and D. A. Hill. "Nausea and Vomiting of Pregnancy." *American Family Physician* 68 (July 1, 2003): 121–128.

Ratnaike, R. N. "Acute and Chronic Arsenic Toxicity." *Postgraduate Medical Journal* 79 (July 2003): 391–396.

Tan, M. "Granisetron: New Insights Into Its Use for the Treatment of Chemotherapy-Induced Nausea and Vomiting." *Expert Opinion in Pharmacotherapy* 4 (September 2003): 1563–1571.

Tiwari, A., S. Chan, A. Wong, et al. "Severe Acute Respiratory Syndrome (SARS) in Hong Kong: Patients' Experiences." *Nursing Outlook* 51 (September-October 2003): 212–219.

Walling, Anne D. "Ginger Relieves Nausea and Vomiting During Pregnancy." *American Family Physician* 64 (November 15, 2001): 1745.

ORGANIZATIONS

American Gastroenterological Association (AGA). 7910 Woodmont Ave., 7th Floor, Bethesda, MD 20814. (310) 654-2055. http://www.gastro.org/index.html. aga001@aol.com.

Belinda Rowland
Rebecca J. Frey, PhD

Vulvovaginitis *see* **Vaginitis**

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

W

Warts

Definition

Warts, also called verrucae, are small benign growths usually caused by a viral infection of the skin or mucous membrane. The virus infects the surface layer of skin. The viruses that cause warts are members of the human papilloma virus (HPV) family, of which there are many different strains. Warts are not cancerous but some strains of HPV, usually not associated with warts, have been linked with **cancer** formation. Warts are contagious from person to person and from one area of the body to another on the same person.

Description

Particularly common among children, young adults, and women, warts are a problem for 7–10% of the population. There are close to 60 types of HPV that cause warts, each preferring a specific skin location. For instance, some types of HPV cause warts to grow on the skin, others cause them to grow inside the mouth, while still others cause them to grow on the genital and rectal areas. However, most can be active anywhere on the body. The virus enters through the skin and produces new warts after an incubation period of one to eight months. Warts are usually skin colored and feel rough to the touch, but they also can be dark, flat, and smooth.

Warts are passed from person to person, directly and indirectly. Some people are continually susceptible to warts, while others are more resistant to HPV and seldom get them. The virus takes hold more readily when the skin has been damaged in some way, which may explain why children who bite their nails tend to have warts located on their fingers. People who take a medication to suppress their immune system or are on long-term steroid use are also prone to a wart virus infection. The same is true for patients with **AIDS**.

The main categories of warts are common warts (face and hands) plantar warts (feet) and venereal warts.

Hand warts (verruca vulgaris) can grow anywhere on the hands, but usually occur where skin has been damaged in some way (e.g. picking or nail biting). This is a rough horny lesion varying in size from 1 mm–2 cm in diameter.

Foot warts (verruca plantaris) known as plantar warts, are the most painful type of wart, due to the pressure exerted on them. They are most common in children and young adults, since they are often contracted in locker rooms and swimming pool areas. If left untreated, they can grow to an inch or more in circumference and spread into clusters. Those suffering from diabetes are more likely to suffer from plantar warts, and may also suffer complications, due to the reduced potential for their bodies to heal themselves.

Flat warts tend to grow in great numbers and are smaller and smoother than other warts. They can erupt anywhere, appearing more frequently on the legs of women, the neck and dorsum of the hands, the faces of children, and on the areas of the face that are shaved by young adult males.

Genital warts also called condylomata acuminata, moist warts, fig warts, or venereal warts, are one of the most common sexually transmitted diseases (STDs). Genital warts are more contagious than other types of warts. Approximately one million new cases of genital warts are diagnosed in the United States every year. It is estimated that two-thirds of persons coming into contact with genital warts will develop symptoms within three months.

Genital warts tend to be small flat bumps or they may be thin and pointed in shape. They are usually soft, moist, pink to red in color, occurring as a single lesion or in clusters that resemble a cauliflower, and not scaly like other warts. In women, genital warts appear on the external genitalia, within the vagina, on the cervix, and around the anus or within the

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Warts on the thumb. *(© Medical-on-Line / Alamy)*

rectum. In men, genital warts usually appear on the tip of the penis but may also be found on the scrotum or around the anus. Genital warts can also develop in the mouth of a person who has had oral sexual contact with an infected person. They may also appear, less often, between the toes.

Filiform wart is a long, horny, finger-like projection that is usually found in multiples. Seen most commonly in adult males, they occur in the bearded area of the face or on the eyelids and neck.

Causes and symptoms

Since warts are caused by a virus, they can only be caught by contact with a source of infection. This can be direct physical contact or secondary contact with the shed skin of a wart (through a floor or a towel for example). As the incubation period for warts is quite long, it is often difficult to pinpoint sources of infection. Individuals whose immune systems are deficient most often contract warts. AIDS patients commonly suffer from warts, and it is not uncommon for warts to appear at the site of a trauma (**burns**, **cuts**, abrasions, etc).

KEY TERMS

Condyloma acuminata (plural, condylomata)—The medical term for warts in the genital region or anus.

Cryotherapy—A technique of removing warts by freezing with liquid nitrogen.

Epidermis—The outer layer of human skin.

Human papilloma virus—A family of viruses that causes hand warts, foot warts, flat warts, and genital warts.

Salicylic acid—An agent prescribed in the treatment of hyperkeratotic skin conditions and fungal infections.

Verruca (plural, verrucae)—The medical term for warts.

Diagnosis

Common warts are rough, irregular, skin colored or brownish. Warts that are brownish in color, or that do not respond to treatment, should be checked by a physician to exclude the possibility that they may be malignant growths.

Treatment

Warts may need no treatment at all, since a large proportion of them (67% over a two-year period) disappear spontaneously. This is particularly so in the case of flat warts. However, a wart that appears unusual in any way should be checked by a physician, as a small proportion can become malignant. Generally, the main criterion for treatment of warts is a cosmetic one, if it is found to be embarrassing by the sufferer or unpleasant to others.

Acupuncture

The aim with **acupuncture** will be to raise the general well being of the patient, improve the functioning of the immune system, and free blockages of "chi" or life force. Warts and other health problems will be less likely to occur as general health and resistance are improved.

Aromatherapy

Since warts are caused by viral **infections**, the aim of an **aromatherapy** treatment would be to kill the

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

virus with the application of an appropriate essential oil. There are many oils that have antiviral properties, so the therapist will also endeavor to choose oils that are appropriate for the patient. Onion and **garlic** oils both have powerful antiviral properties, but perhaps **tea tree oil**, which also possesses remarkable anti-viral properties, might be more acceptable as far as smell is concerned.

Colloidal silver

The use of **colloidal silver** against viruses of all kinds has proved very successful. It should be topically applied to the wart, but can be taken internally to promote functioning of the immune system, and thus prevent warts from occurring.

Herbal medicine

Herbal remedies for genital warts and other STDs have attracted considerable recent attention because of the epidemic spread of these diseases in developing countries where most people cannot afford allopathic treatments. One traditional herbal remedy from Colombia that is being studied is extracts of plants belonging to the Euphorbia family. These compounds have been used to treat ulcers, tumors, and warts for generations, and some of them appear to be effective in treating genital warts.

Before applying any herbal cure to a wart, as much of the wart as possible should be removed, in order to give the cure a head start.

- Apple juice: Apply the juice of a sour apple. Action is due to the **magnesium** in the juice.
- Banana skin: First the wart should be rubbed with an abrader and a fresh banana skin (immediately after opening) should be applied and left overnight.
- Cabbage: Apply fresh juice from a white cabbage.
- **Chickweed**: Apply the juice to the wart.
- **Dandelion**: The juice of the dandelion is a very old English cure for warts.
- Garlic: A raw clove rubbed on the wart every night until it disappears.
- Green figs: The white milk from a green fig is excellent at removing warts.
- House leek: This is a plant commonly found in rock gardens. It has thick fleshy leaves and its juice is rich in supermalate of **calcium**, which will destroy warts.
- Pineapple: Cotton wool should be soaked in the fresh juice of a pineapple. The enzymes of the pineapple will dissolve the wart.
- Rubber plant: If you take a leaf from a rubber plant and break its stem, white liquid will ooze out. If this is applied to the wart over a period of two to three days, the wart should disappear.

Naturopathy

Naturopathy, as with many alternative therapies, works on the principle that given the right circumstances, such as pure air, pure water, and good **nutrition**, the body will heal itself and become extremely resistant to illness. Naturopaths believe that symptoms such as warts are the result of toxins in the body and an immune system that is not running efficiently. They may prescribe treatments such as **colonic irrigation** with a program of healthy eating to raise the general level of health. A naturopath may suggest a paste made with **vitamin C**, applied to the wart daily for a period of a few weeks.

Visualization

This method, also known as creative or guided imagery, has skeptically been described as "willing yourself well," but practically it has been found to be very effective for a range of conditions, both physical and emotional. The patient is required to sit in a relaxed state, breathing evenly, and visualize the self in the condition he or she would like to be. In this case, perhaps to visualize the body overcoming the warts and absorbing them, leaving behind healthy skin. This method has been found particularly suitable for children, as it has no side effects and therapists claim it has a good success rate.

Folk remedies

There are many remedies for warts that have been handed down from generation to generation all over the world. The following remedies have excellent track records.

- Thread: a length of thread should be tied around the wart, and tightened every day until the wart drops off.
- Human saliva: the sufferer applies his or her saliva to the wart every morning.

Allopathic treatment

Warts may be self-treated using a number of allopathic remedies, but care should be taken as they are fairly strong chemicals (usually salicylic acid). Those suffering from diabetes, **heart disease** or circulation problems, or any degree of **peripheral neuropathy**, should not attempt to treat themselves with any of these preparations, because of the risk of damage

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

to tissue, and because of their increased susceptibility to infection.

In addition, the face and mucous membranes may scar, so it may be preferable to seek professional advice.

A physician may use cautery (use of heat) or cryosurgery (use of extreme cold, usually in the form of liquid nitrogen) to remove warts. These are processes that require precision, and therefore are highly skilled procedures. Another drawback is that they can be painful. Increasingly, laser treatments are also being used to treat warts, whereby the laser beam vaporizes the wart tissue. Pulsed laser treatments appear to be particularly effective in treating warts in the anogenital region of children.

A newer allopathic medication that shows promise in the treatment of resistant viral facial warts is diphencyprone (DPC), a drug that was developed to treat a type of **hair loss** known as alopecia areata. DPC has shown effectiveness in removing facial warts that were resistant to both cryosurgery and other topical drugs.

Expected results

Allopathic methods for the treatment of warts are generally successful, but they carry more risk of scarring than natural methods. More than one alternative method may have to be tried before success is achieved, but they carry the added bonus of adding to the well-being of the patient, and not harming the body. Allopathic treatments involve the use of strong chemicals, which carry risks and that are not compatible with body chemistry. Usually, warts either disappear spontaneously or are treated successfully with no scarring or lasting effects. However, occasionally, what appears to be a wart is the beginning of a type of cancer, so those that are resistant to treatment should be seen by a physician.

Recurrent genital warts are a serious personal and public health concern. Even though genital warts may be removed, the virus itself continues to live. Certain types of HPV can cause tissue changes in the cervix of women with recurrent infection that may lead to cervical cancer. The general recommendation for women who have a history of genital warts is to see their doctors every six months for Pap smears to monitor any changes that may occur.

Prevention

To avoid foot warts, footwear should always be worn in public places and feet should be kept clean and dry. In general, warts should not be picked, to avoid cross infection, and any patch of damaged skin should be protected. Every effort should be made to keep the immune system in peak working condition.

Genital warts can be prevented by using condoms and avoiding unprotected sexual contact. Barrier protection will not, however, prevent the spread of wart-causing HPV to such uncovered areas as the pubis and upper thighs.

Vaccines to prevent the spread of human papillomavirus are available for use in women.

Resources

BOOKS

Buchman, Dian Dincin. *Herbal Medicine*. London: Tiger Books International, 1991.

Kenton, Leslie. *The Joy of Beauty*. London: Century Publishing,1993.

The Editors of Time-Life Books. *The Medical Advisor: The Complete Guide to Alternative and Conventional Treatments*. Alexandria, VA: Time-Life Books, 1997.

Renner, John H. *The Home Remedies Handbook*. Publications International, Ltd., 1994.

Stupik, Ramona. *AMA Complete Guide to Women's Health*. New York: Random House, 1996.

PERIODICALS

Betancur-Galvis, L. A., G. E. Morales, J. E. Forero, and J. Roldan. "Cytotoxic and Antiviral Activities of Colombian Medicinal Plant Extracts of the *Euphorbia* Genus." *Memorias do Instituto Oswaldo Cruz* 97 (June 2002): 541-546.

Brentjens, M. H., K. A. Yeung-Yue, P. C. Lee, and S. K. Tyring. "Human Papillomavirus: A Review." *Dermatologic Clinics* 20 (April 2002): 315-331.

Centers for Disease Control and Prevention. "Sexually Transmitted Diseases Treatment Guidelines 2002." *MMWR Recommendations and Reports* 51 (RR-6) (May 10, 2002): 1-78.

Garland, S. M. "Human Papillomavirus Update with a Particular Focus on Cervical Disease." *Pathology* 34 (June 2002): 213-224.

Pollock, B., and A. S. Highet. "An Interesting Response to Diphencyprone (DPC) Sensitization on Facial Warts: Review of DPC Treatment for Viral Warts." *Journal of Dermatological Treatment* 13 (June 2002): 47-50.

Tuncel, A., M. Gorgu, M. Ayhan, et al. "Treatment of Anogenital Warts by Pulsed Dye Laser." *Dermatologic Surgery* 28 (April 2002): 350-352.

Vermani, K., and S. Garg. "Herbal Medicines for Sexually Transmitted Diseases and AIDS." *Journal of Ethnopharmacology* 80 (April 2002): 49-66.

ORGANIZATIONS

American Academy of Dermatology, P.O. Box 4014, 930 N. Meacham Rd., Schaumburg, IL 60168-5014. (847) 330-2300. Fax: (847)330-0050. http://www.aad.org.

American Academy of Family Physicians, 8880 Ward Parkway, Kansas City, MO 64114 (816) 333-9700. http://www.aafp.org/health.info.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

American Podiatric Medical Association. 9312 Old Georgetown Rd, Bethesda, MD 20814–1698. (301) 571-9200. http://www.apma.org.
Centers for Disease Control and Prevention (CDC). 1600 Clifton Road, Atlanta, GA 30333. (404) 639-3311. http://www.cdc.gov.

OTHER
Medscape. http://www.medscape.com/micromedex/CareNotes/dermatology/ElectrocauteryWartRemoval.html.

Patricia Skinner
Rebecca J. Frey, PhD

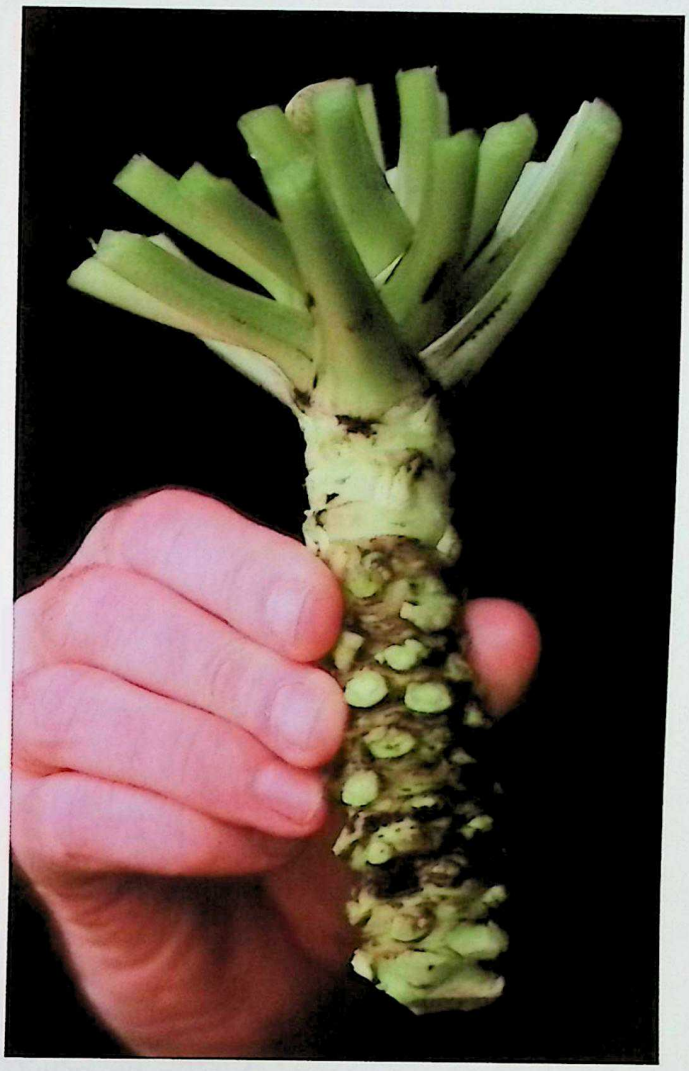
Wasabi

Description

Wasabi (*Wasabia japonica*) is an edible plant member of the Cruciferae family, which includes cabbage, turnips, and mustard. Wasabi shares the anticancer benefits of this family. Native to Japan where it has been cultivated since the tenth century, it is still considered a staple condiment in that country. Traditional preparation involves using a sharkskin grater called an *oroshi*.

Wasabi's culinary popularity and chemical bioactivity make it valuable medicinally and industrially. Demand for wasabi has created a relatively short supply, higher prices, and new commercial opportunities. These new opportunities include research and development of cultivation technologies, particularly in Canada, and exportation from Japan of *seiyo wasabi*, or Western wasabi—imitations made of horseradish (*Cochlearia armoracia*). Western and Japanese wasabi are both highly prized.

Wasabi (*Wasabia japonica*) is a perennial, root-like rhizome that is cylindrical in shape. A brownish-green skin covers its pale green flesh. The plant grows to about 18 in (46 cm) in height and produces leaves on long stems from the crown of the plant. As the plant ages, the leaves fall off and a rhizome, or creeping underground stem, is formed, from which new buds arise as modified stems. The modified stem is the part of the plant that is used. The highest quality wasabi, whose translated name is mountain hollyhock (also known as *sawa wasabi*), thrives on cool water. It grows along the edges of cold mountain streams. When cultivated, rather than wild-crafted (harvested randomly from its natural growing places), it is grown on tree-shaded, terraced gravel beds covered by a thin layer of cool running mountain water or on artificially shaded gravel ridges formed in larger river beds. A lower quality wasabi (*oka wasabi*) is grown in fields. There are two varieties of wasabi, *Daruma*—considered to have a more attractive appearance—and *Mazuma*—considered to have more heat. Wasabi is described as being "hot and fiery without burning," which changes to a sweetness that lingers in the mouth.



Wasabi root. *(Photograph by Don Ryan. AP Photos. Reproduced by permission.)*

General use

Historically, wasabi has been consumed as a condiment, used similarly to horseradish or mustard. Its pungent flavor and aroma may add a piquant flavor to sushi, marinades or sauces, and rice, noodle, and fish dishes. In Japanese restaurants across North America, sashimi and sushi may be served with a small mound of grated wasabi or wasabi paste. Nontraditional uses include adding wasabi to mashed potatoes, tuna sandwiches, or blending it with soy sauce. One source

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Crucifer—A type of vegetable that is now believed to guard against cancer, ulcers, and infections in the digestive tract. Examples of crucifers include wasabi, broccoli, cauliflower, mustard greens, and cabbage.

Rhizome—A subterranean plant stem that is distinguished from a true root by stem buds or nodes that develop into new shoots. A rhizome transports and stores water and nutrients. If a rhizome is cut, it does not die as would a root, but is capable of sprouting several new plants.

Sashimi—A traditional Japanese preparation of rice, fish, shell fish, mollusks, and other fish products, served with pickled vegetables.

Sushi—A traditional Japanese preparation of food wherein vinegared rice, vegetables, and fish or fish products, are wrapped in *nori* seaweed, cut, and served.

included it in a recipe for a unique Bloody Mary. Wasabi leaves marinated in sake, brine, or soy sauce, are eaten with a bowl of rice.

Aside from its unique flavor, wasabi has another benefit. Traditional Japanese cuisine includes raw fish, which is a potential source of parasites and bacteria. Wasabi's antiparasitic, antimicrobial, and antibiotic abilities may be preventive against **food poisoning**. One source points specifically to wasabi's effectiveness against the Anisakis parasite. Another study, comparing the antibacterial activity of different foods against *Escherichia coli* (*E. coli*) and Staphylococcus bacteria, found that cruciferous plants possess antibacterial activity, with the highest activity found in wasabi (rhizome).

Other studies found that wasabi may be effective against the tooth-adhering ability of the bacteria *Streptococcus mutans*, thus inhibiting dental plaque and decay. Of special note are the numerous studies demonstrating wasabi's effectiveness against stomach **cancer** cells. One study found the induction of stomach cancer in rats was suppressed when they were given wasabi. The risk of hormone-related malignancies, such as breast and **prostate cancer**, may also be lowered. Some researchers believe that the cruciferous vegetables help the body eliminate excess endogenous (produced from within) and exogenous (produced from without but ingested or absorbed) hormones, such as estrogen. This action may be a result of wasabi's ability to stimulate the liver and gallbladder, aiding in the digestion of fatty foods and the processing of food nutrients.

Other medicinal benefits attributed to wasabi include its effectiveness against **diarrhea**, **blood clots**, inflammation, and **asthma**. Its pungent aroma may help relieve sinusitis and **bronchitis**. Although the amounts absorbed from culinary use may be negligible, wasabi reportedly also contains **potassium**, **calcium**, and **vitamin C**.

Industrial applications of wasabi under investigation include its usefulness in the development of other antibiotics due to its own antibiotic qualities; its effectiveness as a fungicide against the blackleg fungus that threatens plants commercially valued for their oil, such as rapeseed and canola; and, its possible use as an effective alternative to chemically toxic wood preservatives.

Preparations

Wasabi is most commonly found in powder or paste form. However, due to the scarcity and price of high quality wasabi, many of these preparations—including imports from Japan for retail sale and those served in Japanese restaurants—are imitations made of horseradish, mustard, a starchy binder, and coloring. Wasabi paste may be made from a powdered wasabi by adding water, and letting it stand 10 minutes to allow the flavor and heat to develop. One source noted that the powder may be safely stored in a cupboard, but recommended refrigerating the paste. A salad dressing may be made by combining 3 tbsp of rice wine vinegar, 1 tbsp honey, 1 tsp wasabi paste, 1 tsp soy sauce, and 1/2 tsp **sesame oil**.

Traditional wasabi is freshly prepared for each use, as its volatile oils are quickly dissipated. It is recommended that individuals select a fresh, cool, and succulent rhizome with nice color. It should be rinsed under cool water with a vegetable brush, cutting a fresh surface below or above the leaf node (a distinctive ridge as on bamboo stems). While maintaining a 90-degree angle to the grating surface, the wasabi should be grated in a circular motion against a traditional sharkskin, ceramic, or stainless steel grater. (It is not necessary to peel the wasabi rhizome before grating it.) Then it is gathered into a ball and allowed to sit momentarily at room temperature. It is best used within 15 to 20 minutes.

One source notes that wasabi products are often found in large grocery stores that sell Asian food products and ethnic condiments; Asian markets; fish markets; gourmet shops; and other alternative marketplaces. Prices are similar to other specialty condiments of equal quality.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Precautions

Wasabi should not come into contact with the eyes or nasal passages.

Due to its anti-inflammatory, antibiotic, antibacterial, antiparasitic, anticoagulant, and anti-asthmatic effects, the use of wasabi may magnify the effects of certain pharmaceutical drugs used for similar purposes. People with ulcers, esophageal reflux, kidney disorders, gastrointestinal disease, or those using hormone replacement therapy, are advised to consult with a healthcare professional before using wasabi.

Side effects

Due to its liver and gallbladder stimulating effects, eating wasabi may cause gastrointestinal disturbances, including diarrhea and **nausea**.

Interactions

One source notes that wasabi has possible interactions with anti-inflammatory analgesics, anesthetics, thyroid medications, corticosteroids, diuretics, and high blood pressure medications. This may be due in part to confusion with horseradish species. No other *Wasabia japonica*-drug interaction references are noted.

Resources

BOOKS

Black, Jacquelyn G. *Microbiology, Principles and Explorations*, 5th ed. Hoboken, NJ: John Wiley & Sons, 2002.

PERIODICALS

Cohen, S. "Wasabi May Make Sushi Safe." *Shape* (November 2002): 116.

Fuke, Y., Y. Haga, H. Ono, T. Nomura, and K. Ryoyama. "Anti-carcinogenic Activity of 6-methylsulfinylhexyl Isothiocyanate, an Active Anti-proliferative Principal of Wasabi (*Eutema wasabi maxim*)." *Cytotechnology* (1997): 197–203.

Fuke, Y., Y. Ohishi, K. Iwashita, H. Ono, and K. Shinohara. "Growth Suppression of MKN-28 Human Stomach Cancer Cells by Wasabi (*Eutrema wasabi maxim*)." *Journal of the Japanese Society of Food Science & Technology* (1994): 709–11.

Hill, M., and G. Barclay. "Dig Up Great Taste." *The Herb Companion* (December 2003): 28–37.

Hodge, W. H. "Wasabi: Native Condiment Plant of Japan." *Economic Botany* (January 1974): 118–29.

Knittel, L. "10 Foods for a Healthy, Beautiful Smile." *Natural Health* (December 2002): 45–7.

Ono, H., S. Tesaki, S. Tanabe, and M. Watanabe. "6-Methlsulfinylhexyl Isothiocyanate and its Homologues as Food-oriented Compounds with Antibacterial Activity Against Escherichia coli and Staphylococcus aureus." *Bioscience, Biotechnology, and Biochemistry* (February 1998): 363–5.

Tanida, N., A. Kawaura, A. Takahashi, K. Sawada, and T. Shimoyama. "Suppressive Effect of Wasabi (pungent Japanese spice) on Gastric Carcinogenesis Induced by MNNG in Rats." *Nutrition and Cancer* (1991): 53–8.

OTHER

American Chemical Society. *Wasabi! Sushi condiment may prevent cavities*. December 2000. http://www.sciencedaily.com/.

"Bamboo Select." Botanical Features: Rhizomes. [Cited May 22, 2004]. http://www.bambooselect.com/UK/Botanical-features.htm.

City Farmer, Canada's Office of Urban Agriculture. *Urban agricultural notes: Wasabia japonica*. http://www.cityfarmer.org/.

Lerche-Davis, J. "Pull Out the Chop Sticks-Wasabi May Prevent Tooth Decay." *WebMD Medical News Archives* [cited June 14, 2004]. http://www.mywedmd.com/.

Mccauley, D. "Wasabi." *Canadian House & Home* November 2000. [cited June 14, 2004]. http://www.findarticles.com/.

Lee Ann Paradise
Katherine E. Nelson, N.D.

Water therapy *see* **Hydrotherapy**

Watsu *see* **Shiatsu**

Waxberry *see* **Bayberry**

Western cedar *see* **Red cedar**

Western herbalism *see* **Herbalism, Western**

Wheat germ

Description

Wheat germ is the embryo of the wheat kernel. It is separated from wheat being milled for flour. Wheat germ is **sodium**-and **cholesterol**-free, and dense in nutrients. It is rich in **vitamin E**, **magnesium**, **pantothenic acid**, **phosphorus**, thiamin, and **zinc**. It is also a source of coenzyme Q10 (ubiquinone) and PABA (para-aminobenzoic acid). Two tablespoons of wheat germ contains 65 calories, 6 g protein, 2 g of unsaturated fat, and 2 g of fiber.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

General use

Wheat germ is a food source, and is part of the breads and cereals food group. Its high vitamin and mineral content make it an extremely nutritious food. Wheat germ contains the following nutrients:

- Vitamin E. One cup of wheat germ contains 19.5 mg of vitamin E, and one tablespoon of wheat germ oil is packed with 26.2 mg of vitamin E. Vitamin E is an antioxidant which is thought to protect the immune system.
- Magnesium. Magnesium assists the body in producing and transferring energy, and helps to maintain heart, bone, muscle, and circulatory system health.
- Pantothenic acid. The panthothenic acid in wheat germ helps the body process and use energy from food, and metabolizes cholesterol and fatty acids. There is approximately 1.24 mg of pantothenic acid, also called vitamin B_5, in 0.5 cup wheat germ. The U. S. recommended daily allowance (RDA) of pantothenic acid is 5 mg/day.
- Phosphorus. A quarter cup serving of wheat germ contains 232 mg of phosphorus. Phosphorus helps build bones and teeth and assists in metabolism. Adults should consume approximately 700 mg of the mineral daily.
- Thiamine. Thiamine, one of the B complex vitamins, is essential to normal growth, and to building healthy skin, muscle, bones, and hair. It also promotes normal functioning of the nervous system, and helps the body to metabolize alcohol. One cup of wheat germ contains 1.08 mg of thiamin, and the RDAs for men and women are 1.2 mg and 1.1 mg, respectively.
- Zinc. Wheat germ contains some zinc, a trace mineral and antioxidant essential for proper growth, immune system function, and hormone production.
- Coenzyme Q10. Coenzyme Q10, or ubiquinone, is an antioxidant that assists cells in transferring energy and oxygen.
- Para-aminobenzoic acid (PABA). PABA helps to maintain the balance of intestinal flora, or bacteria.

Wheat germ is also high in fiber, and contains approximately 1 gram of fiber per tablespoon. A diet high in fiber can be useful in regulating bowel function (i.e., reducing **constipation**), and may be recommended for patients at risk for colon disease, **heart disease**, and diabetes.

Preparations

Wheat germ is used extensively in animal feeds, but for human consumption, wheat germ cereals and wheat germ oil are the two most popular preparations of the grain. Both are available in most grocery and health food stores.

A jar of vacuum-packed wheat germ can be safely stored up to one year unopened. Opened jars should be refrigerated, where they can be stored up to nine months if stored properly and tightly sealed.

To increase fiber and nutrients in bread and cereal recipes, wheat germ may be used to replace 0.5–1 cup of regular flour.

Precautions

Because wheat germ contains fat, proper cold storage is necessary to prevent spoilage.

Side effects

There are no known side effects to wheat germ consumption at normal dietary levels.

Resources

BOOKS

Reavley, Nocola. *The New Encyclopedia of Vitamins, Minerals, Supplements, and Herbs.* New York: M. Evans & Company, 1998.

Paula Ford-Martin

KEY TERMS

Antioxidant—A substance that inhibits oxidation, a process that damages cells in the body and may play a role in aging and cancer.

Metabolize—For food and nutritional components, to convert food into energy and then break it down into simpler substances for excretion.

Wheat grass therapy

Definition

Wheat grass, sometimes written as wheatgrass or wheat-grass, is a young green wheat plant (genus *Agropyron*) harvested before it develops grain kernels and turns the traditional yellow color associated with wheat stalks. Wheat grass is commonly prepared as a juice, and is consumed either alone or as a mixture with other juices.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Ears of triticale, a hybrid of wheat and rye grass. *(© Foods of the World / Alamy)*

Wheat grass is a source of many nutrients. Differences between samples of wheat grass due to variable growing conditions, quality of seed, and other factors including dose amounts and form will produce variable amounts of nutrients in any single dose of wheat grass. The following is a partial list.

- biotin
- choline
- lutein
- lycopene
- betacarotene
- thiamine
- riboflavin
- niacin
- pantothenic acid
- pyridoxine
- folic acid
- vitamin C
- vitamin E
- vitamin K

KEY TERMS

Chlorophyll—Any of a group of green pigments found in plants and some types of bacteria.

Enzyme—Any of a large group of proteins produced by living organisms and functioning as biochemical catalysts.

- calcium
- cobalt
- copper
- alanine
- arginine

Although wheat grass contains a wide range of **amino acids** and other nutrients, the concentrations are low. Relatively large quantities of wheat grass may be required in order to provide significant nutritional benefits.

Origins

There is no well documented history of consumption of wheat grass. Wheat is one of the oldest crops known, and was cultivated as long as 9,000 years ago in the Euphrates Valley of the Middle East. At least one company has claimed that ingestion of wheat grass dates from the Essenes, a Jewish sect of about the first century A.D.. Contemporary use seems to have originated with Ann Wigmore (1909–1994). Wigmore may be credited with many of the theories concerning enzymes, grasses, and living foods:

Benefits

Wheat grass, depending on the dose, is considered a dietary supplement, although the concentrations of some nutrients may be low. The sellers of wheat grass have made a large number of claims for the product. The following list is representative, but not complete:

- cure cancer
- cure chronic fatigue syndrome
- detoxify liver
- purify blood
- neutralize pollutants
- improve energy
- improve circulation
- slow aging

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

- increase immunity
- protect against biological warfare

Description

Wheat grass is usually grown indoors, either commercially or for personal use. The grass is harvested while still green, and before the wheat kernels have developed. The juice is extracted either with stone grinding, as with a mortar and pestle, or with a manual juicer. High-speed juicers are considered unsuitable, either because they will oxidize the chlorophyll or destroy the enzymes.

Wheat grass juice, according to Ann Wigmore, should be consumed within 30 minutes of juicing.

Wheat grass has a taste that has been described as pungent, however one manufacturer disputes these claims, and maintains that the product has a watermelon or **green tea** taste.

Preparations

Wheat grass may be purchased in a variety of ways. Kits are available, containing seed, soil, and pots, so that users may grow their own supplies. Alternately, the cut grass is available in packages of 8 or 16 ounces.

Powders and tablets made from dehydrated wheat grass are also marketed to the public.

Precautions

No special precautions are required. Because wheat grass juice does not contain gluten, the principle allergen in wheat, the juice may be expected to be safe even for people with wheat **allergies**.

Side effects

There are no established side effects of wheat grass.

Research and general acceptance

Wheat grass has not been accepted into conventional medicine at any level. The United States Food and Drug Administration (FDA) and the German Commission E have not reviewed the validity of wheat grass therapy claims. While some of the claims made for wheat grass are based on laboratory studies, there do not appear to be clinical studies or any form of confirmation from human studies of any form.

While wheat grass contains a large assortment of nutrients, the concentrations are low, and a large volume of juice or powder would be required in order to make a significant contribution to health. Arguments regarding the benefits or orally ingested enzymes have been generally rejected, because enzymes are destroyed during digestion.

Training and certification

There is no training required to prepare wheat grass, and no established rules for its use.

Resources

BOOKS

Blumenthal, M., et. al. *The Complete German Commission E Monographs—Therapeutic Guide to Herbal Medicine.* Austin, TX: American Botanical Council, 1998.

Meyerowitz, S., et. al. *Wheatgrass Nature's Finest Medicine: The Complete Guide to Using Grass Foods & Juices to Revitalize Your Health, 6th edition.* Great Barrington, MA: Sproutman Publications, 1999.

Wigmore, A. *The Wheatgrass Book.* Avery Penguin Putnam

PERIODICALS

Bauman B. "The Benefits of Wheatgrass Fact or Fiction?" *Greater Baton Rouge Business Report*, August 29, 2000, p 36.

Bradley, R. "You can reduce stress—lose weight—detoxify—stop smoking—increase energy with living foods." *Townsend Letter for Doctors and Patients* (April 2003): 86.

"11 Super Foods to Eat Right Now." *Vegetarian Times* (December 1998).

Gilbere, Gloria. "Nature's Immune Booster and pH Balancer." *Total Health* (August/September 2003): 40.

"Grass in a glass." *The University of California, Berkeley Wellness Letter* (November 1995): 4.

"Medicinal Antidotes from Dr. Chili: How to Protect Yourself Against the Effects of Chemical Weapons." *Earth First!* 21, p. 20

"Reports on the health aspects of wheat grass juice." *Environmental Nutrition* (May 2000): 7.

"Wheatgrass Therapy." *NCAHF Newsletter* (September-October 1994): 3.

Wigmore, A. "The wheatgrass way to super health and vitality: it's easy to grow your own!" *Health News & Review* (Spring 1992): B.

ORGANIZATIONS

American Botanical Council, 6200 Manor Rd, Austin, TX 78723.

Ann Wigmore Natural Health Institute, Inc. PO Box 429 Rincón, Puerto Rico 00677.

The National Council Against Health Fraud, 119 Foster Street Peabody, MA 01960.

Samuel Uretsky, Pharm.D.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Wheezing

Definition

Wheezing is a high-pitched whistling sound associated with labored breathing.

Description

Wheezing occurs when a person tries to breathe deeply through air passages (bronchia) that are narrowed because of muscle contractions or filled with mucus as a result of: allergy, infection, illness, or irritation. Wheezing is experienced by 10-15% of the population.

Wheezing most commonly occurs when a person is exhaling. It is sometimes accompanied by a mild sensation of tightness in the chest. **Anxiety** about not being able to breathe easily can cause muscle tension that makes the wheezing worse.

Causes and symptoms

Wheezing is the symptom most associated with **asthma**. It can be aggravated by dry air and high altitude. A 2001 study also found a connection between nighttime wheezing/asthma and gastroesophageal reflux, or the flow of stomach acid backward into the lower part of the esophagus. Wheezing can be caused by:

- exposure to allergens (food, pollen, and other substances, that cause a person to have an allergic reaction)
- fumes
- ice-cold drinks, or very cold air
- medication
- strenuous exercise
- weather changes
- foreign objects trapped in the airway
- cystic fibrosis and other genetic disorders
- respiratory illnesses like pneumonia, bronchitis, congestive heart failure, and emphysema

The symptoms of wheezing are: labored breathing, whistling sound upon breathing, shortness of breath, and a tight or heavy feeling in the chest.

Medical emergencies

Breathing problems can be life-threatening. Immediate medical attention is required whenever a person:

- Turns blue or gray and stops breathing.
- Becomes extremely short of breath, and is unable to speak.
- Coughs up bubbly pink or white phlegm.
- Seems to be suffocating.
- Develops a fever of 101°F (38.3°C) or higher.
- Wheezes most of the time, and coughs up gray or greenish phlegm.

KEY TERMS

Allergen—A substance that causes an allergic reaction in a person with a hypersensitive immune system.

Bronchia—Air passages in the lungs. Wheezing occurs when bronchia become constricted (narrowed).

Diagnosis

A family physician, allergist, or pulmonary specialist takes a medical history that includes questions about **allergies**, or unexplained symptoms that may be the result of allergic reactions. If the pattern of the patient's symptoms suggests the existence of allergy, skin and blood tests are performed to identify the precise nature of the problem.

A pulmonary function test may be ordered to measure the amount of air moving through the patient's breathing passages. X rays are sometimes indicated for patients whose wheezing seems to be caused by chronic **bronchitis** or **emphysema**.

Treatment

Patients whose wheezing is related to asthma, chronic bronchitis, emphysema, or a severe allergic reaction may benefit from alternative medicine but they must continue to have their condition monitored by a conventional physician.

Mild wheezing may be relieved by drinking plenty of juice, water, weak tea, and broth. This helps to replace fluids lost because of rapid breathing and loosen mucous in the air passages. Ice-cold drinks should be avoided. A vaporizer can help clear air passages. A steam tent, created by lowering the face toward a sink filled with hot water, placing a towel over the head and sink, and inhaling the steam, can have the same effect.

Herbal remedies

Several herbal remedies exist for the treatment of wheezing and asthma, and they include:

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

- Baical skullcap (*Scutellaria baicalensis*) decoction relieves wheezing.
- Coltsfoot tea may relieve wheezing.
- Cramp bark (*Viburnum opulus*) tincture eases breathing.
- Elecampane (*Inula helenium*) can help to clear mucous.
- Garlic (*Allium sativum*) can ease asthma symptoms.
- German chamomile (*Chamomilla recutita*) infusion can relieve wheezing.
- Ginkgo (*Ginkgo biloba*) eases asthma symptoms.
- Marsh mallow (*Althaea officinalis*) root eases asthma symptoms.
- Mullein (*Verbascum thapsus*) tea in a vaporizer relieves wheezing.
- Nettle (*Urtica dioca*) infusion relieves wheezing.
- Passionflower (*Passiflora incarnata*) relaxes muscle spasms leading to a reduction in wheezing.
- Thyme (*Thymus vulgaris*) infusion relieves wheezing.

Ayurvedic treatment

Wheezing can be alleviated by drinking **licorice** tea. The tea is prepared by steeping one teaspoon of licorice (*Yashti madbu*) root in one cup of water, adding 5-10 drops of mahanarayan oil just before drinking. The patient should take one sip every 5-10 minutes. A remedy for breathlessness is a mixture of onion juice (one quarter cup), black pepper (0.125 tsp), and honey (1 tsp).

Mustard seeds have bronchial system healing properties. Brown mustard oil may be massaged onto the chest. A mustard tea (one quarter teaspoon each ground mustard seed and pippali or black pepper) with honey may be drunk two or three times daily or sipped throughout the day. Another mustard remedy is taking brown mustard oil (1 tsp) with natural sugar (1 tsp) two or three times daily.

Homeopathy

Homeopathic remedies are chosen for each patient based on his or her pattern of symptoms. Arsenicum is indicated for patients who experience restlessness, fearfulness, wheezing, and shortness of breath between the hours of midnight and 3 A.M. Spongia is recommended for those who have dry wheezing, which may occur as the patient is falling asleep, a feeling of suffocation, and a dry **cough**. **Lobelia** is for patients with chest tightness and wheezing that is worsened in cold air. Sambucus is indicated for persons whose wheezing is worsened after midnight, but who don't experience the fear or restlessness experienced by an arsenicum patient. **Pulsatilla** is recommended for those who are affectionate, and feel stifled in warm rooms. **Ipecac** is for patients who have a lot of phlegm in the lungs (wheezing is accompanied by rattling sounds in the chest), coughing, and possibly **vomiting**. **Bryonia** is for patients with dry wheezing, who feel warm and thirsty, and whose symptoms are worsened by motion.

Other remedies

Other treatments for wheezing include:

- Aromatherapy. The essential oils of lavender, eucalyptus, and rosemary can relieve congestion. Adding German chamomile essential oil to a vaporizer can relieve wheezing.
- Diet. Eliminating red meat, wheat, and dairy products and following a macrobiotic diet of vegetarian foods may relieve asthma symptoms.
- Relaxation techniques. Anxiety can worsen an asthma attack and therefore wheezing. Meditation, biofeedback, deep breathing, or other stress- reduction methods may help promote relaxation.
- Supplements. Magnesium may help to prevent bronchial spasms. The frequency of asthma attacks may be reduced by taking vitamin C and the B complex vitamins.
- Yoga. Certain yoga positions (Bridge, Cobra, Pigeon, and Sphinx) may relieve wheezing by improving breathing control and reducing stress.

Allopathic treatment

Bronchodilators (medications that help widen narrowed airways) may be prescribed for patients whose wheezing is the result of asthma. Antibiotics are generally used to cure acute bronchitis and other respiratory **infections**. Expectorants (cough-producing medications) or bronchodilators are prescribed to remove excess mucus from the breathing passages. If wheezing is caused by an allergic reaction, antihistamines will probably be prescribed to neutralize body chemicals that react to the allergen.

A new type of drug was being tested in late 2001 that blocks immunoglobulin E (IgE), an antibody produced in excessive levels in patients with **hay fever**. The drug also appears to prevent asthma in patients with chronic hay **fever**. The drug, called omalizumab, is the first in a new line of drugs expected to appear in the next few years.

If wheezing and asthma symptoms worsen in the nighttime, diagnosis and treatment of possible acid reflux in the stomach might ease symptoms.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Expected results

Mild wheezing caused by infection or acute illness usually disappears when the underlying cause is eliminated.

Some doctors believe that childhood respiratory infections may activate parts of the immune system that prevent asthma from developing.

Prevention

Stopping **smoking** can eliminate wheezing. So can reducing or preventing exposure to allergens or conditions that cause wheezing.

A person prone to wheezing should wear a scarf or surgical mask over the nose and mouth during physical exertion outdoors during cold weather. Likewise, wearing a surgical mask outdoors during the allergy season is helpful for persons whose wheezing is triggered by allergies.

Licorice root tea may prevent asthma (wheezing) attacks. Ayurvedic herbal remedies to prevent asthma symptoms include:

- Cinnamon (1 tsp) and trikatu (0.25 tsp) tea with honey twice daily
- Licorice and ginger (0.25 tsp each) tea
- Bay leaf (0.5 tsp) and pippali (0.25 tsp) mixed in honey taken two or three times daily
- Sitopaladi (0.5 tsp), punarnova (0.5 tsp), pippali (pinch), and abrak bhasma (pinch) mixed with honey taken once daily
- Spinach juice (0.125 cup) and pippali (pinch) taken twice daily

Resources

BOOKS

Cummings, Stephen and Dana Ullman. *Everybody's Guide to Homeopathic Medicines: Safe and Effective Remedies for You and Your Family*. New York: Jeremy P. Tarcher/Putnam, 1997.

The Editors of Time-Life Books. *The Medical Advisor: The Complete Guide to Alternative and Conventional Therapies*. Alexandria, VA: Time-Life Books, 1996.

Lad, Vasant D. *The Compete Book of Ayurvedic Home Remedies*. New York: Harmony Books, 1998.

PERIODICALS

Avidan, B., et al. "Temporal Associations Between Coughing or Wheezing and Acid Reflux in Asthmatics."*Gut* (December 2001): 767.

Blanc, Paul D., et al. "Alternative Therapies Among Adults with a Reported Diagnosis of Asthma or Rhinosinusitis: Data from a Population-Based Survey." *Chest* (November 2001): 1461.

Lanctot, Denise. "Case of the Out-Of-Control Wheeze." *Prevention* 48 (April 1996): 124+.

Langer, Stephen and Patricia Andersen-Parrado. "Stifling allergies." *Better Nutrition* 61(April 1999): 44+.

Plaut, Marshall. "Immune-Based, Tageted Therapy for Allergic Diseases."*JAMA, The Journal of the American Medical Association*. (December 19, 2001): 3005.

ORGANIZATIONS

American Lung Association, 1740 Broadway, New York, NY 10019-4374, (800) 586-4872. http://www.lungusa.org.

Asthma and Allergy Foundation of America. (800) 7-ASTHMA.

OTHER

"Kids in Daycare Three Times as Likely to Have Wheezing Illnesses." http://www.lungusa.org/footer.html (16 May 1998).

"Wheezing." http://www.mcare2.org/healthtips/homecare/wheezing.htm (16 May 1998).

"Wheezing." http://www.onhealth.com/bu/cond/ailments/htm/wheezing/htm (17 May 1998).

Belinda Rowland
Teresa Norris

White peony root

Description

Peonies are members of the same botanical family as the buttercup, Ranunculaceae, and belong to the genus *Paeonia*. They originated in Asia, and have been

The root of the white peony flower is considered an herb with strong blood-toning characteristics, used to treat the imbalance of blood in the body, cooling and providing nourishment to the blood and activating circulation. *(© Organica / Alamy)*

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

cultivated in both Japan and China for at least several centuries, perhaps even a millennium. Peonies are an early ground-breaker, producing reddish shoots as early as April in the Northern Hemisphere. They are a tall plant, ranging from 1–5 ft (30–150 cm) in height. Their branching stems produce glossy deep green leaves that taper to a point on each end, and grow up to 5 in (12.5 cm) in length. The peony root is brownish in color and tuberous.

The peony flowers are produced at the tips of the branching stems. Beginning as globular buds that produce a sweet, sticky exudate that attracts ants (that do no harm), these buds slowly open into large, showy flowers with diameters up to 10 in (20.5 cm) wide. The peony is an extremely long-lived plant, especially for a flowering one. It is not uncommon for peonies to live for a hundred years. They prefer moist, humus-rich loam and either full or partial sun. If peonies become overcrowded, the plants must be divided, and at the end of the growing season, it is best to cut off the stems at ground level and mulch for winter protection.

Though there are literally hundreds of hybrid varieties that have been developed over the centuries, most peonies share both a common origin and fairly similar characteristics. Many resemble a herbaceous shrub. Others that originated in western China have woody stems and are called tree peonies. Tree peonies do not die back completely in winter. In addition, tree peony root and red peony root are considered separate entities in **traditional Chinese medicine**.

Classification of these flowering plants is often based on when they bloom. The earliest produce blossoms in late April (in southern areas) or early May. Others flower in mid- or late May and into June. Another means of classifying peonies is based upon the shape of their flowers. Single peonies form a circle of five or more petals radiating symmetrically outward from a middle ring of yellow stamens, or male procreative structures. Japanese peonies have a similar appearance, but the stamens are both more narrow and more level and produce no pollen. Other varieties are either semi-double or double. Semi-double peonies have multiple rings of petals circling around visible stamens. Double peonies produce concentric rings of showy petals that hide the stamens.

Most of the varieties of peony admired in flower gardens today are hybrids of the two original species of this plant, *Paeonia officinalis* and *Paeonia lactiflora*, which differ slightly in appearance. *Paeonia officinalis* is the species most often seen in gardens and used as an ornamental flower. It reaches heights of 1.5-2 ft (45-60 cm) tall and its subspecies have a remarkable variation of colors. This species produces creeping roots that help to spread the plant.

Paeonia lactiflora, also called *Paeonia alba* or white peony, is the plant most often used in herbal medicine, particularly in Chinese herbal medicine. White peonies grow to 3 ft (1 m) tall, and are among the later-flowering peonies, coming into bloom in May and June in most climates. They have a sweeter scent than *Paeonia officinalis*. Despite the name of white peony, flowers can be several hues other than white depending upon the subspecies. There are rose-pink and scarlet varieties, as well as white peonies ornamented with other colors. White peonies can be either single, semi-double or fully double. *Paeonia rubra*, or red peony, is a separate herb.

KEY TERMS

Cold-deficiency diarrhea—In Chinese herbal medicine, this condition is described as cold settling in the abdomen when resistance is low, causing cramping, gas, and loose stools.

Emmenagogue—A medication or substance that induces menstruation.

General use

Under the name *bai shao*, white peony root is used in many diverse Chinese herbal formulas. It is considered an herb with strong blood-toning characteristics, used to treat the imbalance of blood in the body, cooling and providing nourishment to the blood, and activating circulation. More specifically, red peony root is used to treat heat rash, to correct poor circulation, and to stop hemorrhages.White peony root is used for irritability and muscle cramping, vaginal discharges, excessive menstrual bleeding, and excessive sweating. It is also given to treat a large variety of gynecological disorders and to avert miscarriage.

In the databases developed by the Agricultural Research Service of the United States Department of Agriculture, white peony root (from both *Paeonia albaflora* and subspecies *Paeonia albaflora trichocarpa*) has been shown to have chemical properties that restore the normal functioning of the digestive system; act as a laxative; relieve **pain**; reduce or stop spasms or seizures; lower blood pressure by dilating arteries; and improve the **nutrition** of blood. Peony root appears to have some positive effects in treating **anemia**, some types of **cancer**, convulsions, **gastritis**, **hypertension**, and some gynecological problems. It

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

can also be used as an emmenagogue, which means that it can bring on a woman's menstrual period.

Preparations

Powdered peony root is used in combination with other herbs used in Chinese herbal medicine, including apricot seeds, bupleurum, inula, **cyperus**, clematis, **corydalis**, ginseng, **licorice**, pueraria, rehmannia, dogwood, and **gardenia**. The classic Chinese blood tonic is a mixture of rehmannia, *dang bui*, cnidium, and white peony. A Western herbalist suggests combining white peony with nettles and **yellow dock** for treating mild anemia or blood deficiency.

Precautions

Chinese herbalists advise against using white peony root when cold-deficiency **diarrhea** is present.

Western readers should remember that Chinese herbal medicine is based upon individual prescriptions developed for each patient and his or her unique symptoms. Chinese herbs should not be taken, either individually or in formulas, unless a practitioner of Chinese herbal medicine is first consulted.

Resources

BOOKS

Molony, David, and Ming Ming Pan Molony. *The American Association of Oriental Medicine's Complete Guide to Chinese Herbal Medicine*. New York: Berkley Publishing, 1999.

Phillips, Ellen, and C. Colston Burrell. *Rodale's Illustrated Encyclopedia of Perennials*. Emmaus, PA: Rodale Press, Inc., 1993.

Reid, Daniel. *A Handbook of Chinese Healing Herbs*. Boston: Shambhala Publications, Inc., 1995.

OTHER

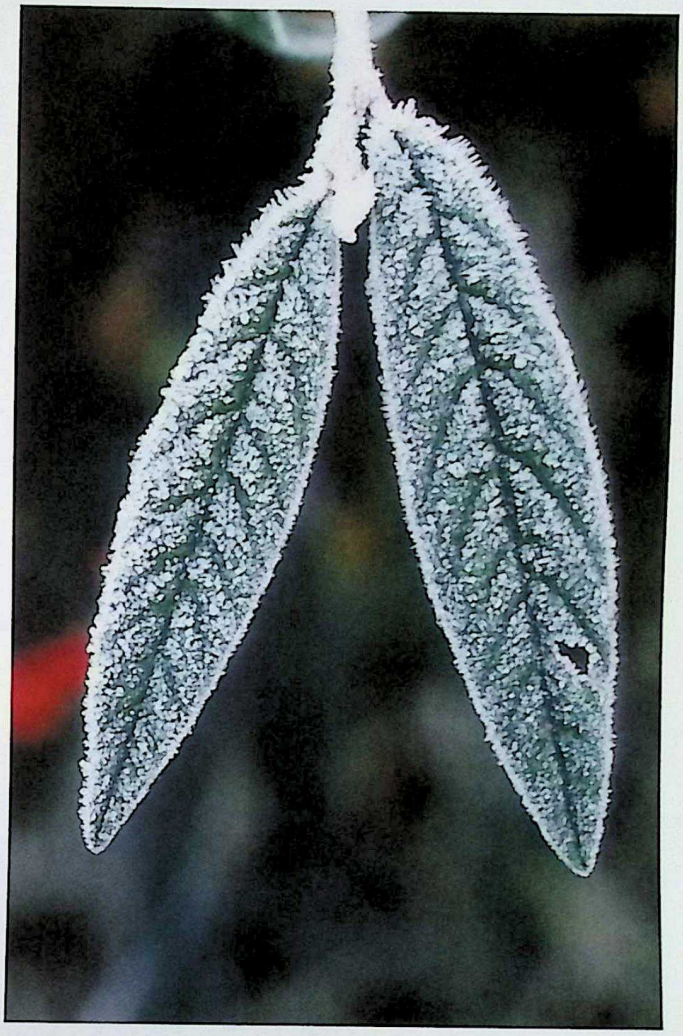
Duke, James, MD. Dr.Duke's Phytochemical and Ethnobotanical Databases. http://www.ars-grin.gov/duke/ethnobot.htm.

Joan Schonbeck

White willow

Description

White willow (*Salix alba*) is a large tree that grows in Central and Southern Europe, Asia, and North America. Also known as European willow or baywillow, this tree prefers to root near streams and rivers and grows to a height of 35–75 ft (11–25 m). In the spring the slender branches first sprout tiny, yellow flowers and then long, thin green leaves.



White willow is the oldest recorded analgesic, or painkiller, in human history. *(© Arco Images / Alamy)*

White willow belongs to the Salicaceae family. There are over 300 species of willow, but only several species are used medicinally: white willow (*S. alba*), purple willow (*S. purpurea*), violet willow (*S. daphnoides*), and crack willow (*S. fragilis*).

General use

White willow is the oldest recorded analgesic, or painkiller, in human history. Chinese physicians have used white willow since 500 B.C. to relieve **pain** and lower fevers. White willow was also used in ancient Assyrian, Egyptian, and Greek medicine as well. The Greek physicians Dioscorides, Hippocrates, and Galen recommended white willow to remedy fevers and pain. Native American tribes, including the Cherokee, Blackfoot, Iroquois, and Eskimo peoples, created a tea from closely related species of the bark to relieve headaches,

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Analgesic—A medication or preparation given to relieve pain. White willow extract has analgesic effects.

Decoction—An herbal tea created by boiling herbs in water. Roots, bark, and seeds are used in decoctions; boiling the herbs brings out their medicinal properties.

Nonsteroidal anti-inflammatory drugs (NSAIDs)—A group of analgesic medications that also have anti-inflammatory effects when used over a period of time.

Reye's syndrome—A rare but potentially fatal disorder that is most likely to occur in children following a viral disease and associated with giving aspirin. The symptoms of Reye's syndrome include vomiting, liver damage, and swelling of the brain.

Salicin—A bitter-tasting water-soluble chemical found in willow bark that has analgesic properties.

Tinnitus—A condition that causes ringing in the ears.

fever, sore muscles, **chills**, rheumatism, and general aches and pains. White willow was used in Europe to stop **vomiting**, remove **warts**, and suppress sexual desire as well as to treat fevers and pains.

In the mid-1700s, white willow was used in Britain as a remedy for **malaria** since the bark was similar to cinchona bark, a South American bark used to treat malaria. In 1828, European chemists extracted the constituent salicin from white willow bark and converted it to salacylic acid. At the end of the nineteenth century, acetylsalicylic acid was synthetically produced and aspirin was born. Due to the cheap and easy production of aspirin, white willow eventually lost its popularity as a pain and fever reliever.

In modern times, however, white willow is being recalled as nature's aspirin and gaining popularity around the world as an alternative treatment for fevers and inflammatory and painful conditions such as **bursitis**, **tendinitis**, headaches, **rheumatoid arthritis**, back pain, **osteoarthritis**, menstrual cramps, and muscle aches. White willow has been approved by the German Commission E for treating fevers, rheumatic ailments, and headaches. In France, white willow is used to remedy headaches, **toothache** pain, tendinitis, and muscle **sprains**. The British Herbal Compendium has administered white willow as a treatment for rheumatic and arthritic conditions, colds, and **influenza**.

How white willow works

The inner bark contains tannins, flavonoids, phenolic glycosides, and anti-inflammatory and fever-reducing salicylates. The high concentration of tannins may be responsible for relieving gastrointestinal disturbances and reducing tumors of the esophagus, stomach, colon, and rectum.

White willow's analgesic effect works to inhibit the production of prostaglandins, a hormone-like chemical that is produced by the body in response to injury and causes aches, pains, and inflammation. Thus, white willow is beneficial in treating acute and chronic pain and inflammation in conditions such as painful **menstruation**, arthritis, and **neuralgia**. White willow is best when used over long periods of time and can take days to improve conditions.

The active ingredient in white willow is salicin. Salicin is gradually converted along with other compounds in white willow into salicylic acid in the intestine and liver. Because of this conversion process, white willow generally takes longer to act than aspirin, but the effects may last for an extended period of time. As a result, white willow is mild on the stomach and usually does not cause bleeding or other gastrointestinal discomfort that often occurs with aspirin usage.

White willow vs. aspirin

Herbalists claim that white willow can sometimes be used to treat the same conditions as aspirin. One benefit to white willow use is that the natural salicylic acid present in white willow reportedly produces fewer side effects than the synthetically produced acetylsalicylic acid of aspirin.

Aspirin has been recommended as a treatment to reduce the risk of heart attacks and **stroke** by lessening the chance of internal **blood clots**. Preventative benefits of white willow in these cases have not been determined, primarily because the salicin content of the bark varies. Herbal experts believe that most willow bark samples contain enough salicin to have a similar effect.

Preparations

The bark of young tree branches (two or three years old) is harvested during the early spring. The grayish bark is separated from the tree, then either dried or used fresh. White willow is commercially available in tincture, tablet, capsule, powder, or tea forms. When choosing a commercial preparation, it is recommended to use a standard product that contains 200–250 mg of white willow per dose.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

The recommended daily dosage is 100–250 mg of white willow every four hours. To relieve arthritic, back, and muscle aches and pains, the recommended dosage is 225 mg of white willow bark four times daily.

A decoction made from willow bark is used both internally and externally. To make a decoction, combine 1 tsp chopped or powdered white willow bark with 8–10 oz of water. Bring to a boil, then simmer for five minutes. Drink three or four times daily. This mixture can also be gargled to help inflamed gums and tonsils. Cooled and applied externally, the decoction helps aid healing of sores, **burns**, or **cuts**.

Tincture dosage: 2 ml three times daily.

Precautions

Persons with **tinnitus** should not take white willow.

Pregnant or breastfeeding women should consult their healthcare practitioner before taking white willow.

Persons who are sensitive to aspirin should use caution when taking white willow as it may irritate their stomachs.

Administration of aspirin to children under the age of 16 to relieve symptoms of cold, flu, or **chickenpox** may cause a rare condition called Reye's syndrome. Reye's syndrome is characterized by vomiting, swelling of the brain, and liver damage, and may be fatal. *Reye's syndrome is a medical emergency and requires immediate treatment by qualified medical professionals.* The toll-free hot line number of the National Reye's Syndrome Foundation is listed below.

While white willow is metabolized differently from aspirin, the two have similar effects and it is recommended that white willow not be given concurrent with aspirin use.

Persons with a bleeding disorder, ulcer, **colitis**, **Crohn's disease**, kidney or liver disease, or diabetes should not take this herb.

Children over 12 and persons over 65 should take white willow in low initial doses. Children under the age of 12 should not use white willow at all.

Side effects

Excessive doses of white willow may cause stomach upset, **diarrhea**, **nausea**, or ringing in the ears. If this occurs, stop taking white willow.

Interactions

In general, persons considering taking white willow preparations should first consult a physician or registered pharmacist, as white willow interacts with a number of nonprescription and prescription medications.

Persons who are allergic to aspirin should not use white willow.

White willow should not be taken in combination with aspirin or such nonsteroidal anti-inflammatory drugs (NSAIDs) as ibuprofen or naproxen, alcohol, or blood thinning medications.

White willow has been reported to have adverse interactions with bismuth subsalicylate (Pepto-Bismol), celecoxib (Celebrex), repaglinide (Prandin), and ticlopidine (Ticlid). It increases the action of metaclopramide (Reglan), but reduces the effectiveness of diclofenac (Voltaren, Cataflam), ketoprofen (Orudis), and nadolol (Corgard).

Resources

BOOKS

Pelletier, Kenneth R., MD. *The Best Alternative Medicine*, Chapter 6, "Western Herbal Medicine: Nature's Green Pharmacy." New York: Simon & Schuster, 2002.

Prevention. *The Complete Book of Natural and Medicinal Cures*. Emmaus, PA: Rodale Press Inc., 1994.

PERIODICALS

Appelboom, T. "Arthropathy in Art and the History of Pain Management— Through the Centuries to Cyclooxygenase-2 Inhibitors." *Rheumatology (Oxford)* 41 (April 2002): Supplement 1, 28-34.

Brune, K. "Next Generation of Everyday Analgesics." *American Journal of Therapeutics* 9 (May-June 2002): 215-223.

Riddle, J. M. "History as a Tool in Identifying 'new' Old Drugs." *Advances in Experimental Medicine and Biology* 505 (2002): 89-94.

ORGANIZATIONS

American Herbalists Guild. 1931 Gaddis Road, Canton, GA 30115. (770) 751-6021. http://www.americanherbalistsguild.com.

National Reye's Syndrome Foundation. P. O. Box 829, Bryan, OH 43506. (800) 233-7393. http://www.reyessyndrome.org.

Jennifer Wurges
Rebecca J. Frey, PhD

Whooping cough

Definition

Whooping **cough**, also known as pertussis, is a highly contagious disease that causes classic spasms (paroxysms) of uncontrollable coughing, followed by a sharp, high-pitched intake of air which creates the characteristic whoop of the disease's name.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Wild cherry can be used as a remedy for whooping cough. *(© blickwinkel / Alamy)*

KEY TERMS

Catarrh—Inflammation of a mucous membrane, particularly in the respiratory system, that produces excessive secretions.

Cilia—Tiny hair-like projections from a cell. In the respiratory tract, cilia beat constantly in order to move mucus and debris up and out of the respiratory tree to protect the lung from foreign bodies.

Encephalopathy—Swelling and degeneration of the brain.

Paroxysm—A severe attack or a sudden increase in intensity of a disease.

Prophylaxis—The prevention of disease by protective measures.

Description

Whooping cough is caused by a bacterium called *Bordetella pertussis*. *B. pertussis* causes its most severe symptoms by attaching itself to those cells in the respiratory tract which have cilia. Cilia are small, hair-like projections that beat continuously, and serve to constantly sweep the respiratory tract clean of such debris as mucus, bacteria, viruses, and dead cells. When *B. pertussis* interferes with this normal, janitorial function, mucus and cellular debris accumulate and cause constant irritation to the respiratory tract, triggering coughing and increasing further mucus production.

Whooping cough is a disease that exists throughout the world. While persons of any age can contract whooping cough, children under the age of two are at the highest risk for both the disease and for serious complications including death. Apparently, exposure to *B. pertussis* bacteria earlier in life gives a person some, but not complete, immunity against infection with it later on. Subsequent **infections** resemble the **common cold**.

It is estimated that as many as 120,000 persons in the United States get whooping cough each year. The number of cases has been increasing, with the largest increases found in older children and adults. Between 1993 and 1996, the number of cases increased by 40% in five to nine year old children, 106% in 10–19 year olds, and 93% for persons aged 20 years and older.

Causes and symptoms

Whooping cough has four stages that partially overlap: incubation, catarrhal stage, paroxysmal stage, and convalescent stage.

A person usually acquires *B. pertussis* by inhaling droplets carrying the bacteria that were coughed into the air by someone already suffering with the infection. Incubation is the symptomless period of seven to 14 days after breathing in the *B. pertussis* bacteria, and during which the bacteria multiply and penetrate the lining tissues of the entire respiratory tract.

The catarrhal stage is often mistaken for an exceedingly heavy cold. The patient has teary eyes, **sneezing**, **fatigue**, poor appetite, and an extremely runny nose (rhinorrhea). This stage lasts about 10–14 days.

The paroxysmal stage, lasting two to four weeks, begins with the development of the characteristic whooping cough. Spasms of uncontrollable coughing, the whooping sound of the sharp inspiration of air, and **vomiting** are all hallmarks of this stage. The whoop is believed to occur due to inflammation and mucus that narrow the breathing tubes, causing the patient to struggle to get air into his/her lungs; the effort results in intense exhaustion. The paroxysms (spasms) can be induced by over activity, feeding, crying, or even overhearing someone else cough.

The mucus that is produced during the paroxysmal stage is thicker and more difficult to clear than the more watery mucus of the catarrhal stage, and the patient becomes increasingly exhausted attempting to clear the respiratory tract through coughing. Severely ill children may have great difficulty maintaining the normal level of oxygen in their systems and may appear somewhat blue after a paroxysm of coughing due to the low oxygen content of their blood. Such children may also suffer from swelling and degeneration of the brain

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

(encephalopathy), which is believed to be caused both by lack of oxygen to the brain during paroxysms and by bleeding into the brain caused by increased pressure during coughing. Seizures may result from decreased oxygen to the brain. Some children have such greatly increased abdominal pressure during coughing that hernias result (hernias are the abnormal protrusion of a loop of intestine through a weak area of muscle). Another complicating factor during this phase is the development of **pneumonia** from infection with another bacterial agent which takes hold due to the patient's weakened condition.

If the patient survives the paroxysmal stage, recovery occurs gradually during the convalescent stage, usually taking about three to four weeks. However, spasms of coughing may continue to occur over a period of months, especially when a patient contracts a cold, or other respiratory infection.

Diagnosis

Diagnosis based only on the patient's symptoms is not particularly accurate, as the catarrhal stage may appear to be a heavy cold, a case of the flu, or a simple **bronchitis**. Other viruses and **tuberculosis** infections can cause symptoms similar to those found during the paroxysmal stage. The presence of a pertussis-like cough along with an increase of certain specific white blood cells (lymphocytes) is suggestive of pertussis (whooping cough). However, cough can occur from pertussis-like viruses. The most accurate method of diagnosis is to culture (grow in the laboratory) the organisms obtained from swabbing mucus out of the nasopharynx (the breathing tube continuous with the nose). *B. pertussis* can then be identified by examining the culture under a microscope.

Researchers believe that as many as 90% of the cases are not diagnosed, mainly because of the nonspecific symptoms displayed by adults. An adult who has been coughing for months may have whooping cough.

Recent advances in the accuracy of diagnostic tests based on polymerase chain reactions (PCR) are now being applied to whooping cough. Researchers in Seattle are presently working on a PCR-based test for *Bordetella pertussis* that will improve the speed as well as the accuracy of diagnosing whooping cough.

Treatment

Whooping cough should always be treated with antibiotics and never with only alternative therapies. The following complementary therapies may reduce symptoms and speed recovery. Supportive treatment involves careful monitoring of fluids to prevent dehydration, rest in a quiet, dark room to decrease paroxysms, and suctioning of mucus. Sitting up during coughing attacks may help.

Herbals

The following herbal remedies may help to support antibiotic treatment of whooping cough:

- Bryonia (*Bryonia alba*) tea: spasmodic coughing.
- Butterbur (*Pinguicula vulgaris*) infusion: infection and spasms.
- Evening primrose (*Oenothera biennis*) oil.
- Jamaican dogwood (*Piscidia erythrina*) root or bark: spasms.
- Lobelia (*Lobelia inflata*) tea or tincture: spasmodic coughing.
- Pansy (*Viola tricolor*) tea or tincture: spasms.
- Red clover (*Trifolium pratense*) tea.
- Santonica (*Artemisia cina*) powder, tablets, or lozenges.
- Sea holly (*Eryngium planum*) infusion: infection and spasms.
- Skunk cabbage (*Symplocarpus foetidus*) powder, extract, or tincture.
- Sundew (*Drosera rotundifolia*) infusion: infection and spasms.
- Thyme (*Thymus vulgaris*) infusion: infection and spasms.
- Wild cherry (*Prunus serotina*) bark infusion or syrup: infection and spasmodic coughing.

Homeopathy

Homeopathic remedies are chosen based upon the family of symptoms displayed by each patient. Remedies for symptom families include:

- Drosera: dry and tickly feeling in throat; violent coughing that induces vomiting; symptoms worse after midnight.
- Kali carbonicum: dry, hard, hacking cough at 3 A.M.; puffy eyelids; exhaustion; chilly feeling.
- Coccus: coughing worse when warm; drinking cold water brings relief; vomiting stringy, transparent mucous.
- Cuprum: coughing spasms cause breathlessness and exhaustion; blue lips; toe and finger cramping; drinking cold water brings relief.
- Kali bichromicum: coughing up yellow, stringy mucus.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

- Belladonna: stomach pain before coughing; coughing worse at night; retching with coughing attacks; red face; puffy eye lids.
- Ipecac: sick feeling most of the time; paleness, rigidity, breathlessness, and then relaxation precede vomiting.

Chinese medicine

Traditional Chinese medicine (TCM) practitioners use a combination of herbals, **acupuncture**, and ear acupuncture to treat whooping cough during each stage. Yi Zhi Huang Hua (*Herba solidaginis*) decoction or a decoction of Bai Mao Gen (*Rhizoma imperatae*), Lu Gen (*Rhizoma phragmitis*), and Si Gua Gen (*Radix vascularis luffae*) may be taken for the early stage of whooping cough. Gasping cough can be treated with a mixture of Wu Gong (*Scolopendra*) and Gan Cao (*Radix glycyrrhizae*).

Other remedies

Some other remedies which may assist in the treatment of whooping cough are:

- Dietary supplements include vitamins A and C, beta carotene, acidophilus, lung glandulars, garlic, and zinc.
- Dietary changes include drinking plenty of fluids, eating fruits, vegetables, brown rice, whole grain toast, vegetable broth, and potatoes, and avoiding dairy products.
- Juice therapists recommend orange and lemon juice or carrot and watercress juice.
- Hydrotherapy treatment consists of wet cloths or other material applied to the head or chest to relieve congestion.
- Aromatherapy uses essential oils of tea tree, chamomile, basil, camphor, eucalyptus, lavender, peppermint, or thyme.
- Osteopathic manipulation can reduce cough severity and make the patient feel more comfortable.

Allopathic treatment

Treatment with the antibiotic erythromycin is clearly helpful only in the very early stages of whooping cough, during incubation and early in the catarrhal stage. In general, however, physicians have used this antibiotic both for treatment of whooping cough itself and to prevent its spread to others in the patient's community. This type of preventive measure is known as prophylaxis.

Unfortunately, the benefits of antibiotic prophylaxis and treatment for whooping cough are limited because erythromycin-resistant strains of *B. pertussis* have spread throughout the United States since the first case of erythromycin resistance was identified in Arizona in 1994. Although erythromycin is still used as of 2003 for both treatment and prophylaxis of whooping cough, the Centers for Disease Control (CDC) are monitoring the five resistant strains of *B. pertussis* that have been identified so far.

Expected results

Just under 1% of all cases of whooping cough cause death; in 2000, only two deaths from whooping cough were reported in the United States. Children who die of whooping cough usually have one or more of the following three conditions:

- Severe pneumonia, perhaps with accompanying encephalopathy.
- Extreme weight loss, weakness, and metabolic abnormalities due to persistent vomiting during paroxysms of coughing.
- Other preexisting conditions, so that the patient is already in a relatively weak, vulnerable state (such conditions may include low-birth-weight babies, poor nutrition, infection with the measles virus, presence of other respiratory or gastrointestinal infections or diseases).

Prevention

The mainstay of prevention lies in the immunization program. In the United States, inoculations begin at two months of age. The pertussis vaccine, most often given as one immunization together with diphtheria and **tetanus** (called DTP), has greatly reduced the incidence of whooping cough. With one shot backed with a 70% immunization rate, two shots increase it to 75–80% and three to only 85%, it is not a guarantee.

A new formulation of the pertussis vaccine is available. Unlike DTP, which is composed of dead bacterial cells, the newer acellular pertussis vaccine is made up of two to five chemical components of the *B. pertussis* bacteria. The acellular pertussis vaccine (called DTaP; when combined with diphtheria and tetanus vaccines) greatly reduces the risk of unpleasant reactions, including high **fever** and discomfort at the injection site.

Because adults are the primary source of infection for children, there has been some talk in the medical community about vaccinating or giving booster vaccinations to adults. A recent increase of pertussis cases among adults in France has led several French medical schools to recommend booster doses of vaccine for adults.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Resources

BOOKS

Fetrow, Charles W. *The Complete Guide to Herbal Medicines*. Springhouse, PA: Springhouse Corporation, 1999.

Finegold, Sydney M., et al., eds. *Pertussis in Adults: Epidemiology, Signs, Symptoms, and Implications for Vaccination*. Chicago: The University of Chicago Press, 1999.

Lockie, Andrew and Nicola Geddes. *The Women's Guide to Homeopathy*. New York: St. Martin's Press, 1994.

Ryan, Kenneth J., and Stanley Falkour. "Pertussis." In *Sherris Medical Microbiology: An Introduction to Infectious Diseases*. edited by Kenneth J. Ryan. Norwalk, CT: Appleton and Lange, 1994.

Stoffman, Phyllis. *The Family Guide to Preventing and Treating 100 Infectious Diseases*. New York: John Wiley and Sons, Inc., 1995.

Ying, Zhou Zhong and Jin Hui De. "Whooping Cough." In *Clinical Manual of Chinese Herbal Medicine and Acupuncture*. New York: Churchill Livingstone, 1997.

PERIODICALS

Decker, Michael D. and Kathryn M. Edwards. "Acellular Pertussis Vaccines." *Pediatric Clinics of North America* 47 (April 2000): 309-335.

Gilberg, S., E. Njamkepo, I. P. Du Chatelet, et al. "Evidence of *Bordetella pertussis* Infection in Adults Presenting with Persistent Cough in a French Area with Very High Whole-Cell Vaccine Coverage." *Journal of Infectious Diseases* 186 (August 2002): 415-418.

Henderson, C.W. "Disease Still Potentially Deadly." *World Disease Weekly* (11/29/99-12/6/99): 17+.

Jenkinson, Douglas. "Natural Course of 500 Consecutive Cases of Whooping Cough: A General Practice Population Study." *British Medical Journal* 310 (6975)(February 4, 1995): 299+.

Laliberte, Richard. "The Threat of Whooping Cough." *Parents* 74 (January 1999): 45+.

"Pertussis Deaths–United States, 2000." *Morbidity and Mortality Weekly Report* 51 (July 19, 2002): 616-618.

Qin, X., D. K. Turgeon, B. P. Ingersoll, et al. "*Bordetella pertussis* PCR: Simultaneous Targeting of Signature Sequences." *Diagnostic Microbiology and Infectious Disease* 43 (August 2002): 269-275.

Wilson, K. E., P. K. Cassiday, T. Popovic, and G. N. Sanden. "*Bordetella pertussis* Isolates with a Heterogeneous Phenotype for Erythromycin Resistance." *Journal of Clinical Microbiology* 40 (August 2002): 2942-2944.

ORGANIZATIONS

American Academy of Pediatrics. 141 Northwest Point Boulevard, Elk Grove Village, IL 60007. (847)434-4000. http://www.aap.org.

Centers for Disease Control and Prevention (CDC). 1600 Clifton Road, Atlanta, GA 30333. (404) 639-3311. http://www.cdc.gov.

Food and Drug Administration (FDA), Center for Biologics Evaluation and Research (CBER), 1401 Rockville Pike, Suite 200-N, Rockville, MD 20852. http://www.fda.gov/cber.

Belinda Rowland
Rebecca J. Frey, PhD

Wigmore diet

Definition

The Wigmore diet is named for its creator, Ann Wigmore, who devised a nutritional system called the Living Foods Program, based on a combination of wheat grass juice, live sprouts, and fresh raw foods. It is thought that this dietary regimen, which is sometimes called raw **nutrition**, detoxifies and rebuilds the body. Persons following the Wigmore diet also avoid using denatured processed commercial foods or anything containing chemicals, especially pesticides. Although the Wigmore diet is essentially a vegetarian diet, its distinctive feature is its emphasis on eating foods in their uncooked state.

Origins

The Wigmore diet was developed during the 1960s by Ann Wigmore (1909–1993), who was born in Eastern Europe in 1909 and emigrated to the United States after World War I. Wigmore credited her grandmother with teaching her natural healing methods. She did not, however, use this folk wisdom immediately but returned to it after years of ill health that included **colitis**, headaches, and arthritis. When she finally learned that she had **cancer**, she returned to her grandmother's healing methods in order to regain her health.

After testing the results of a diet based on sprouts and wheat grass juice in her own life, she wanted others to benefit from what she had learned. Wigmore founded the Hippocrates Health Institute in Boston in 1963, which continued into the late 2000s to teach her methods of self-healing through a live-foods diet. Wigmore died in a fire in 1993, and her diet still attracts new followers. Subsequently, the Hippocrates Institute opened branches in southern California and Florida.

Benefits

The Wigmore diet is based on the assumption that the high levels of living enzymes in fresh raw foods, particularly wheat grass juice and fresh sprouts, provide the body with substances needed to detoxify and

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

regenerate. In addition to increased vitality and a strengthened immune system, the Wigmore regimen is thought to help individuals overcome some serious diseases, including arthritis, digestive tract problems, **allergies** and even cancer.

Description

In her 1996 book, *The Blending Book: Maximizing Nature's Nutrients: How to Blend Fruits and Vegetables for Better Health*, Wigmore explained her views:

"Live foods nutrition is super nutrition because it recognizes and appreciates the differences between raw and cooked foods and between natural and synthetic nutrients. In the conventional nutrition-school curriculum there is little room for a discussion of either the value of enzymes and life forces in foods, or the merits of live (raw) versus cooked foods. Yet the difference, when translated into health terms, is the difference between being vitally healthy and alive, and just breathing."

The Wigmore diet classifies foods into four major categories: living foods, which include sprout mixtures, sunflower and buckwheat baby greens, living sauerkraut, and the fresh juices of wheat grass and barley; raw foods, which include fresh organic vegetables and ripe fruit, spices, herbs, and raw nuts; whole cooked foods, which include steamed or boiled vegetables, cooked whole grains, and baked root vegetables; and processed fast foods, which include all forms of junk foods. People following the Wigmore diet believe that most human diseases are caused when a person's diet contains mostly foods in the last two groups.

Practitioners of the Wigmore diet encourage people to think of enzyme and oxygen levels as bank accounts. The more oxygen and enzymes that can be stored in the cells, the healthier one feels. It has been shown that eating certain foods will maintain enzymes and oxygen at optimal preferred levels.

Other notable features of the Wigmore diet are its emphasis on wheat grass as a "living food medicine" and food combining as a key to good digestion. Wheat grass has been credited with more healings than any other factor in the program because it is supposed to be rich in over 90 enzymes and minerals that are needed to build up the blood and immune system. People following the Wigmore diet are encouraged to drink at least two 2-ounce servings of wheat grass juice every day. In addition, wheat grass enemas of 4–8 ounces can be taken "as often as possible" for best results during the **detoxification** process.

Food combining in the Wigmore diet is based on the assumption that certain food combinations cause stomach cramps, **indigestion**, bad breath, intestinal **gas**, or lowered energy levels. Foods are divided into nine groups: proteins (poultry, fish, dairy products, miso, and yeast); pre-digested proteins (nuts and seeds); starches; vegetables; acid fruits (citrus fruits and sour fruits); sub-acid fruits (apples, apricots, most berries, peaches); sweet fruits (bananas, dates, and all dried fruits); melons; and neutral foods (avocados and lemons). Melons are to be eaten alone. While meals made up of foods from any one category provide a good combination, for example, fruit and starch are a bad combination.

Another important point in the Wigmore diet is drinking water. Tap water is considered unsuitable, and some form of filter should be used. Distilled water or spring water are preferred.

Preparations

Preparations for the Wigmore diet include a gradual departure from less healthy foods; cleansing the digestive tract with **aloe** vera or similar products; and encouraging good digestion by eating food at room temperature as often as possible and eating raw or living foods before any cooked foods. It is thought that the cooked foods hold up the digestion of raw and living foods, causing intestinal gas. Ann Wigmore's *The Sprouting Book* discusses the proper preparation of the sprouts that play such a prominent role in her diet.

Precautions

Like all natural therapies, the Wigmore diet is more effective if environmental as well as nutritional pollution of all types is avoided and if a generally healthy lifestyle is followed. Such spiritual practices as **meditation**, visualization, and joining or starting a Living Foods support group are considered important features of a healthy lifestyle.

Side effects

Practitioners of the Wigmore diet warn people to expect certain side effects from detoxification, which is considered a key principle in the Living Foods lifestyle. The diet is believed to clear toxins from the body that have accumulated over years of poor nutritional habits. These toxins are released into the bloodstream and lymphatic system for eventual excretion. During the detoxification process, dieters may feel less energetic and uncomfortable in their body. The program recommends daily non-strenuous **exercise**, high fiber intake to cleanse the colon, daily dry skin brushing over the entire body, and the use of **spirulina** (blue-

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Detoxification—The process of purifying the body of poisons accumulated during years of poor eating habits.

Homocysteine—An amino acid that in high levels can damage the arteries.

Raw nutrition—A synonym for the Wigmore diet's emphasis on uncooked and living foods.

Spirulina—A genus of blue-green algae that is sometimes added to food to increase its nutrient value.

Wheat grass—Young green wheat sprouts, grown organically for juicing; a central element of the Wigmore diet.

green algae) products to ease the side effects of the detoxification process.

As the Wigmore diet is a purely organic regimen and avoids the use of medications and all chemicals, the risk of other side effects is minimal. Nevertheless, some individuals will be unable to tolerate this diet, and others may be allergic to the foods that are prescribed.

Research and general acceptance

As with many holistic therapies, the Wigmore diet is met with skepticism from allopathic physicians. However, there are many clinical cases and testimonials consistent with Wigmore's predicted benefits.

Training and certification

Anyone can follow the Wigmore regimen, as no special training or certification is required. Many holistic practitioners are familiar with Wigmore's works and can advise on the regimen.

A German study reported in 2006 that following a strict raw foods diet can increase the risk of **heart disease**. The study found that people who ate only vegetables, fruits, nuts, and beans, had 26% higher levels of homocysteine, an amino acid that can damage arteries in much the same way as can high **cholesterol** and high triglyceride levels in the blood. The percentage was measured against a study group that also added meat and dairy products to their diet. The study's scientists said that the high homocysteine levels were likely due to a deficiency in vitamin B12, found primarily in animal foods. The study did not look at whether a raw foods diet that includes vitamin B12 supplementation would keep homocysteine at a normal level.

Resources

BOOKS

Rose, Natalia. *Raw Food Life Force Energy: Enter a Totally New Stratosphere of Weight Loss, Beauty, and Health.* New York: Collins, 2007.

Rudell, Wendy. *The Raw Transformation: Energizing Your Life with Living Foods.* Berkeley, CA: North Atlantic Books, 2006.

PERIODICALS

Berkoff, Nancy. "Feeding in the Raw: Raw Food—Vegan by Definition—Takes the No-Meat Menu to New Heights. Are You Prepared to Make the Climb?" *Food Service Director* (December 15, 2005): 34.

Drapkin, Jennifer. "The Raw Rage." *Psychology Today* (July/August 2005): 20.

Mangels, Reed. "Raw Food Diets Also Have Positives and Negatives." *Vegetarian Journal* (May/June 2006): 12.

Walker, Vrinda. "Attitudes, Practices, and Beliefs of Individuals Consuming a Raw Foods Diet." *Vegetarian Journal* (July/August 2006): 27(3).

ORGANIZATIONS

Ann Wigmore Foundation, PO Box 399, San Fidel, NM, 87049-0399, (505) 552-0595, http://www.wigmore.org.

Ann Wigmore Natural Health Institute, PO Box 429, Rincón, Puerto Rico, 00677, (787) 868-6307, http://www.annwigmore.org.

Vegan Society U.K., Donald Watson House, 21 Hylton St., HockleyBirmingham, B18 6HJ, U.K., (0121) 523-1730, http://www.vegansociety.com.

Patricia Skinner
Ken R. Wells

Wild endive *see* **Dandelion**

Wild oat

Description

Wild oat (*Avena sativa*) is a member of the grass family native to Scotland. There are approximately 25 varieties of the oat plants, and oat is now grown throughout the world. *Avena sativa* is the species that is used in herbal remedies. The mature seed of the oat plant is used as a cereal grain, however, much of the plant is used to maintain good health and to remedy disease conditions.

Before maturity, oat seeds are in a liquid phase and they are collected for use in tonics that treat nervous conditions. Wild oat is usually in this stage for two weeks during August.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Wild oats. *(© Agripicture Images / Alamy)*

The seeds mature in the late summer and early fall. If harvested then, the seeds are rolled or ground into oatmeal. If the seeds aren't harvested at that time, they are referred to as groats.

Once the seeds are harvested, the straw from the plant can be cut up and brewed as oatstraw tea. The husks surrounding the seeds are used as oat bran.

The only part of this grain that not used in alternative medicine is the root.

Wild oat is also known as oat, groats, oatstraw, and straw.

General use

Avena sativa is Latin for wild oat, a name that does not provide the complete picture of this grain's use in alternative and conventional medicine. The old saying "sowing your wild oats" is based on the observation that stallions given wild oat experienced greater sex drives. Wild oat was thought to have the same effect on men, although that claim has never been scientifically proven. Nevertheless, dietary supplements containing wild oats are still advertised and sold as boosting the male sex drive.

Wild oat may not be an aphrodisiac or a means of promoting fertility, but the grain has numerous other health benefits.

In the past, people recovering from illnesses ate oatmeal because it was easily digested. Doctors advised overworked people to drink a beverage consisting of wine and oats. The drink was said to restore nervous energy. Oatmeal also served as a treatment for skin conditions.

In contemporary times, oatmeal is acknowledged as a rich source of bran and fiber. The grain is associated with treating high cholesterol . Whole oat products with at least 0.02 oz (0.75 g) of soluble fiber in each serving can reduce the risk of heart disease. The U.S. Food and Drug Administration allowed manufacturers to make that statement, and add that the fiber product must be part of a diet that is low in **cholesterol** and saturated fat. A study published in the summer of 2002 reported that oat cereal is superior to wheat cereal in lowering LDL cholesterol levels in adult males.

A new use for the beta-glucans (complex carbohydrates) contained in oats is in the manufacture of

KEY TERMS

Aphrodisiac—A substance that stimulates or is thought to stimulate sexual desire.

Beta-glucans—Complex carbohydrates contained in oats and other cereal grains. They are thought to be useful in managing diabetes as well as lowering blood cholesterol levels.

Functional food—A food or food ingredient that is thought to confer health benefits in addition to the nutrients it contains.

Gluten—A grayish sticky compound found in oat flour and other grain flours, composed of two proteins, glutenin and gliadin.

Nervine—A type of medication or herbal preparation given to calm the nerves.

Nutraceutical—Another term for functional food.

Tincture—A method of preserving herbs with alcohol. Powdered herb is added to a 50 percent alcohol solution. The tincture steeps for two weeks and is shaken daily. It is strained and bottled.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

functional foods for the management of type 2 (adult-onset) diabetes. Functional foods are a relatively recent category of foods. They are not currently defined as such by any government regulatory body, but are commonly understood to be any potentially healthful food or food ingredient that may provide health benefits beyond the traditional nutrients it contains. Functional foods are sometimes called nutraceuticals.

Oat fiber is also used as a substrate, or growing medium, for *Lactobacillus* and other bacteria that are introduced into the digestive tract of patients suffering from severe **infections** of the pancreas. The "good" bacteria in the intestines help the body to fight off infections elsewhere in the digestive system. The oat fiber provides the bacteria with nourishment without causing any side effects to the patient.

Furthermore, pregnant women can benefit from the calcium and other trace nutrients found in oat straw.

Wild oat is recognized as a natural antidepressant and a mild sedative. It acts like a tonic to the nervous system, providing both nourishment and balance. Oat tea or an oat Bach flower remedy is used as a nervine (preparation given to calm the nerves).

In these capacities, wild oat can be used to treat conditions including headaches, **depression**, tension, insomnia, **anxiety**, and feelings of sadness. Wild oat is also a remedy for nerve **pain** and chronic **fatigue**.

Oatstraw can be used to ease emotional anxieties and to treat skin conditions such as **rashes**, **psoriasis**, **burns**, **eczema**, warts, and insect **bites**.

An oatmeal pack may be used to treat skin conditions. The oatmeal facial is a popular treatment for promoting smoother skin because the textured oat sloughs off dead skin when used as a mask or scrub. An oatstraw bath can provide more relief for skin conditions and neuralgia.

Wild oat is also believed to help relieve symptoms of nicotine withdrawal, a remedy recommended by German doctors. The wild oat extract is said to be effective when used for this purpose, and oat cereal is also said to be helpful.

Preparations

Wild oat is available in various forms and is used in various alternative medicine traditions such as **homeopathy**. Commercial preparations include oatstraw tea, tincture, and the wild oat Bach flower remedy (a liquid concentrate called a stock). The packaged oatmeal sold in the grocery store can also be used for treatments.

Wild oat tea, which is also known as an infusion, is made by pouring 1 c (240 ml) of boiling water over 1–3 tsp (1.5–3 g) of the dried straw. The mixture is steeped for 10–15 minutes and then strained. Wild oat tea should be drunk three times a day.

When wild oat tincture is used, the dosage is 1 oz (1 mL) taken three times a day.

Wild oat can be combined with **skullcap** and **mugwort** to provide relief from depression and to improve sleep.

A flower remedy

Flower remedies are liquid concentrates made by soaking flowers in spring water. Also known as flower essences, 38 remedies were developed by homeopathic physician Edward Bach during the 1930s. Bach's wild oat remedy is taken to resolve conditions such as career anxiety and uneasiness about a lack of direction or commitment.

The daily dosage of the Bach wild oat flower remedy is 2–4 drops (1/8–1/4 ml) taken four times each day. The drops can be placed under the tongue or added to a glass of water. Another way to administer this remedy is to add some stock to the bath water.

Oat baths

An oatstraw bath can provide relief for irritated skin and neuralgia. A bath is prepared by boiling 1 lb (500 g) of shredded oatstraw in 2 qt (0.95 L) of water. After boiling for 20 minutes, this mixture is strained and used in the bath. Another option is to place cooked rolled oats in a bag and put the bag in the bath.

Precautions

Wild oat has not been associated with any health risks when taken in proper dosages, according to *Physician's Desk Reference for Herbal Medicines*, the 1998 book based on the findings of Germany's Commission E. The commission investigates herbal remedies for safety and effectiveness. The European group's findings about herbal remedies were published in a 1997 monograph.

However, people diagnosed with gluten sensitivity (celiac disease) should consult with a doctor or health practitioner to determine if they can safely take wild oat internally.

Side effects

There are no known side effects associated with designated dosages of wild oat.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Interactions

There are no known interactions associated with the use of wild oat and other medications or herbs.

Resources

BOOKS

Duke, James A. *The Green Pharmacy*. Emmaus, PA: Rodale Press, Inc., 1997.

Keville, Kathi. *Herbs for Health and Healing*. Emmaus, PA: Rodale Press, Inc., 1996.

PDR for Herbal Medicines. Montvale, NJ: Medical Economics Company, 1998.

Ritchason, Jack. *The Little Herb Encyclopedia*. Pleasant Grove, UT: Woodland Health Books, 1995.

Squier, Thomas Broken Bear, and Lauren David Peden. *Herbal Folk Medicine*. New York: Henry Holt and Company, 1997.

Tyler, Varro, and Steven Foster. *Tyler's Honest Herbal*. Binghamton, NY: The Haworth Herbal Press, 1999.

PERIODICALS

Davy, B. M., K. P. Davy, R. C. Ho, et al. "High-Fiber Oat Cereal Compared with Wheat Cereal Consumption Favorably Alters LDL-Cholesterol Subclass and Particle Numbers in Middle-Aged and Older Men." *American Journal of Clinical Nutrition* 76 (August 2002): 351-358.

Jenkins, A. L., D. J. Jenkins, U. Zdravkovic, et al. "Depression of the Glycemic Index by High Levels of Beta-Glucan Fiber in Two Functional Foods Tested in Type 2 Diabetes." *European Journal of Clinical Nutrition* 56 (July 2002): 622-628.

Olah, A., T. Belagyi, A. Issekutz, et al. "Randomized Clinical Trial of Specific *Lactobacillus* and Fibre Supplement to Early Enteral Nutrition in Patients with Acute Pancreatitis." *British Journal of Surgery* 89 (September 2002): 1103-1107.

ORGANIZATIONS

American Botanical Council. P.O. Box 201660, Austin, TX 78720. (512) 331-8868.

American Dietetic Association. 216 West Jackson Blvd., Chicago, IL 60606. (312) 899-0040. http://www.eatright.org.

Herb Research Foundation. 1007 Pearl St., Suite 200, Boulder, CO 80302. (303) 449-2265. http://www.herbs.org.

OTHER

Ask Dr. Weil. 2000. http://www.askdrweil.com.

MotherNature.com Health Encyclopedia. 2000. http://www. mothernature.com/ency.

Liz Swain
Rebecca J. Frey, PhD

Wild thyme *see* **Thyme**

Windflower *see* **Pulsatilla**

Wintergreen

Description

Though several different plants are called by this name, true wintergreen is *Gaultheria procumbens*, a low-growing species of shrub common in sandy coastal regions and woodlands of eastern North America from Georgia to New Foundland. It is a member of the heath, or Ericaceae, family. Other names by which wintergreen is known include aromatic wintergreen, boxberry, Canada tea, checkerberry, deerberry, ground berry, mountain tea, partidgeberry, spice berry, teaberry, and wax cluster.

Wintergreen plants have creeping underground stems from which small reddish stalks grow, normally less than 6 in (15 cm) high. Wintergreen leaves are spoon-shaped and less than 0.5 in (1 cm) in length. They are bright green, shiny, and have a leathery appearance. They are attached in tufts near the tip of a rigid, slender stalk. In June or July, wintergreen plants produce tiny wax-like, urn-shaped flowers, which are either white or pink in color. These unusual flowers are often difficult to find because the plant's leaves and other ground covers on the forest floor hide them so well. The fruit of the wintergreen, a startlingly brilliant red berry, appears in late autumn through the winter and is much more visible than the wintergreen flower. Wintergreen is an evergreen plant, and even beneath deep snow it retains its shiny green leaves and scarlet berries.

Wintergreen leaves and berries are edible. In their natural state they have no particularly noticeable odor. The leaves have a tart, spicy, astringent taste, while the berries are sweet, with a unique, pleasant taste which is often used in flavorings. Wintergreen leaves were formerly carried in the *United States Pharmacopoeia*, but now only the oil distilled from them is listed. But in many countries the whole plant is still used. When wintergreen leaves are distilled, they impart an oil which is made up of 99% methyl salicylate, the chemical compound upon which all aspirin products are based. Before being distilled, wintergreen leaves have to be steeped in water for nearly a day before the oil will develop through fermentation. It is only after this fermentation and the chemical reaction of water and one component, gaultherin, that wintergreen emits its characteristic, pleasant aroma. Chemists have learned how to synthetically produce an oil with many of the same properties and a very similar product, also called oil of wintergreen is extracted from the sweet birch tree, *Betula lenta*.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

The name wintergreen is also sometimes applied to two other members of the genus Gaultheria, as well as three other unrelated plants:

- *Gaultheria hispidula* is also called wintergreen. It is supposed to remove the predisposition to cancer from the body.
- *Gaultheria shallon*, sallol, is found in northwest America. Its berries are edible and quite tasty.
- *Pytola rotundiflora* is also known as false wintergreen or British wintergreen. It was formerly used as a vulnerary.
- *Chimophila umbellata* and *Maculata* are both called by a variety of names: bitter wintergreen, rheumatism weed, spotted wintergreen, or pipsissewa. North American natives used these two herbs for the treatment of indigestion, rheumatism, scrofula, and as a diuretic.
- *Trientalis europaea*, or chickweed wintergreen, is native to England. It was used in the past externally in a ointment used in healing wounds, and internally as a tea to treat blood-poisoning and eczema.

KEY TERMS

Eczema—General term for a group of acute or chronic inflammatory skin conditions characterized by redness, thickening, oozing, and the formation of papules, vesicles, and crusts.

Neuralgia—Severe pain caused by irritation of, or damage to, a nerve.

Papule—Superficial, solid elevation on the skin.

Rheumatism—A popular term for any disorder that causes pain and stiffness in muscles and joints and fibrous tissues, including minor aches and twinges, as well as disorders such as rheumatoid arthritis, osteoarthritis, and polymyalgia rheumatica.

Scrofula—Tuberculous inflammation of the lymph nodes of the neck in children, caused by bacteria in cattle; also called cervical adenitis.

Vesicle—Sac or hollow structure filled with fluid (i.e., a blister).

Vulnerary—An agent used for healing wounds.

General use

Wintergreen oil is used as flavoring for candies, chewing gum and medicines. With **eucalyptus** or menthol, it is often used to flavor toothpaste and other dental products. The berry, often called checkerberry, is used for flavoring candies. It is sometimes used as a tea by itself, or combined with tea as a flavoring. Hence, its name teaberry.

Medicinally, wintergreen leaves are taken internally as a decoction to treat nephritis and bladder problems. Wintergreen is used as a diuretic, for the treatment of **neuralgia**, as a systemic tonic, to stimulate menses, and to aid in bringing on lactation after childbirth. It has also been used to relieve children's headaches. Its leaves have also been used for headaches and other pains, and as a gargle for a **sore throat** and mouth.

Externally, oil of wintergreen is widely used in liniments for the relief of muscular-skeletal **pain**, both from sports injuries and arthritis. Because of its aromatic and pain-relieving qualities, the oil is used in a number of products in aroma therapy, including stress-reducing pulse point creams, foot scrubs and balms.

Preparations

Wintergreen leaves can be picked at any time of year, but summer is the most opportune time for gathering them. They must be dried in the shade to prevent loss of the volatile oil contained in the leaves, and should be stored in an airtight container in a dark, cool place. A decoction can be made by mixing 1 c (240 ml) of boiling water with 1 tsp (1.5 g) of the dried wintergreen leaves and allowing the mixture to steep for 15 minutes. This tea may be taken up to three times per day.

Oil of wintergreen, as noted previously, is made by first steeping wintergreen leaves in water for at least 24 hours, and then allowing this mixture to ferment and release its oil. Fermentation is known to have occurred when the characteristic wintergreen aroma is released. This oil is sometimes used externally in dilute solutions in combination with other products such as aloe and lanolin to produce ointments, but either the oil extracted from sweet birch or the synthetic version are more apt to be used.

Precautions

Oil of wintergreen should not be taken internally. In the past, it has been given in a capsule form to treat rheumatism, but excessive doses of it have actually caused death due to severe inflammation of the stomach and gastro-intestinal hemorrhage.

Side effects

True oil of wintergreen, distilled from wintergreen leaves, is very rapidly absorbed by the skin and often causes severe skin irritation and painful, hive-like skin eruptions.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Resources

BOOKS

Grieve, M., and C. F. Leyel. *A Modern Herbal: The Medical, Culinary, Cosmetic and Economic Properties, Cultivation and Folklore of Herbs, Grasses, Fungi, Shrubs and Trees With All of Their Modern Scientific Uses.* Barnes and Noble Publishing, 1992.

Hoffman, David, and Linda Quayle. *The Complete Illustrated Herbal: A Safe and Practical Guide to Making and Using Herbal Remedies.* Barnes and Noble Publishing, 1999.

Taber, Clarence Wilbur. *Taber's Cyclopedic Medical Dictionary.* F.A. Davis Co., 1997.

Thayer, Henry. *Fluid and Solid Extracts.* Geo. C. Rand & Avery, 1866.

OTHER

Hobbs, Christopher. *Herbal Advisor.* http://www.AllHerb.com.

Joan Schonbeck

Witch hazel

Description

Witch hazel (*Hamamelis virginiana*) is a deciduous tree or shrub that is native to Atlantic North America, and it is now also cultivated in Europe and Asia. The shrub can reach a height of 15 ft (4.6 m). It flowers in the fall, producing vivid yellow flowers. Witch hazel is also known as hazel nut, snapping hazel, spotted alder, tobacco wood, winterbloom, and hamamelis water.

Native Americans used witch hazel leaves and bark as a poultice to reduce swelling and inflammation. Those are among the uses of this herb that has long been among the best known and widely used home remedies.

The word "witch" in the name of the herb is actually a derivative from the Anglo-Saxon word *wych* meaning flexible. The word described the flexibility of the branches that Native Americans used to make bows.

Witch hazel (Hammamelis). *(© Krys Bailey / Alamy)*

General use

Witch hazel is a very versatile remedy, with generally accepted uses ranging from facial care to soothing aching feet. It is also used for the treatment of **hemorrhoids**, inflammation of the mouth and throat, other conditions, such as **varicose veins**, **wounds**, and **burns**.

Witch hazel has so many applications that Andrew Weil, M.D., called the decoction or tincture of the bark the "all–around astringent." Weil, who practices natural and preventive medicine, recommended using witch hazel to ease the **pain** of **sunburn**, windburn, insect **bites**, poison ivy **blisters**, and sore and sprained muscles.

The medicinal element of witch hazel is the hamamelis water that is distilled, decocted, or tinctured from fresh and dried leaves, and fresh and dried bark and twigs. Tannins and volatile oils are the primary active ingredients of witch hazel that contribute to its astringent benefits. The tannin content of witch hazel leaves is 8%, and in witch hazel bark ranges from 1–3%, as the medicine derived from the bark will

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Antioxidant—An enzyme or other organic substance that is able to counteract the damaging effects of oxidation in living tissue. The hamamelitannin in witch hazel is a strong antioxidant.

Astringent—A substance that contracts body tissue and checks capillary bleeding. Witch hazel's astringent action is caused by tannins.

Decoction—System for releasing the herbal essence of bark or root bark. Those elements are simmered in a non-aluminum pan. Place 1 ounce of chopped bark or roots in 16 ounces or water. Bring to a boil, then simmer for 10 minutes. Strain, then squeeze out juices.

Pharynx—The cavity at the back of the throat that leads from the mouth and nasal passage to the larynx.

Poultice—A paste made of crushed herbs and a substance such an hot moist flour, corn meal, or bread and milk. The paste is placed on the skin.

Tannin—An astringent substance named for its uses in the tanning industry because it "fixes and preserves tissue," such as leather goods.

Tincture—A method of preserving herbs with alcohol. Powdered herb is added to a 50 percent alcohol solution. The tincture macerates for two weeks and is shaken daily. It is strained and bottled.

Topical—A type of medication that is applied to the external surface of the skin. Witch hazel is most commonly used in topical formulations.

yield a higher tannin concentration than that from leaves. Recent research done in Asia indicates that it is the tannin content of witch hazel that is chiefly responsible for its strong antioxidant activity.

As with other herbal astringents, witch hazel reduces the irritation on the tissue surface through a form of numbing. Surface inflammation is reduced, and the astringent creates a partial barrier against infection. That barrier aids in the treatment of wounds and burns. The astringency helps to stop bleeding, so witch hazel is useful in treating **bruises**, **cuts**, and other skin abrasions.

In addition, a cold compress of witch hazel is said to ease a **headache**. Cosmetically, witch hazel is used as a facial skin freshener and astringent to reduce pore size, make-up remover, and to reduce bags under eyes. Products for men that contain witch hazel include herbal shaving cream and aftershave.

The above are among the mainstream applications of the herb that Native Americans regarded as a general tonic. They also brewed witch hazel as a tea for conditions including cuts, colds, heavy **menstruation**, tumors, and eye inflammation. Witch hazel was taken internally to stop bleeding from hemorrhage.

Some of those applications remain part of folk medicine. Other folk remedy applications of witch hazel include applications for backache, and internal use for **diarrhea**, nervousness, nosebleed, **vaginitis**, and venereal disease.

As of 2008, there has been relatively limited research on the uses of witch hazel in the United States. There is agreement among alternative health practitioners that external use of this herb is safe.

Research conducted in Europe provides more information about applications of witch hazel. There, witch hazel products were approved for skin injuries, inflammation of skin and mucous membranes, and varicose veins. Witch hazel and leaves for the topical treatment of skin injuries, burns, varicose veins, and hemorrhoids. Recent studies carried out in Germany and the United Kingdom have established that witch hazel extract offers some protection against UV radiation prior to sun exposure and relieves the inflammation of sunburn.

In the United States, there is another controversy about the remedial benefit of witch hazel. Hamamelis water, when distilled, contains no tannin. Distilled witch hazel consists of a mixture of 14% of alcohol in water with a trace of volatile oil. The astringent effect of witch hazel is due to an alcohol content similar to that of red wine. But the unstudied volatile oils exert some effects similar to topical tannin, and are also antimicrobial.

Preparations

Witch hazel is available in various forms. Commercial preparations include witch hazel water and gels, although much commercial witch hazel is not true distilled witch hazel water. Witch hazel is also an ingredient in products, such as face and body pads and hemorrhoid pads, including Preparation H ointment.

As a topical astringent, witch hazel water is applied directly to burns, bruises, insect bites, and aching muscles. It can also be used to clean oily skin, remove make-up, or mixed with water for a relaxing footbath. Uses for the gel include treating cuts, **diaper rash**, and **bedsores**.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

An infusion of fresh or dried leaves has been "cautiously used" in the treatment of internal hemorrhaging or for to reduce excessive menstrual flow.

Infusion is a process that preserves the astringent tannin in witch hazel, using the leaves. A decoction may be prepared by simmering, not boiling, the herb's bark. This is done by steeping 1 teaspoon of witch hazel powder or twigs in a cup of boiling water. The mixture is boiled and covered for 10 minutes, then strained. After it cools, it can be applied directly or mixed into an ointment base such as petroleum jelly.

Uses of witch hazel leaf include remedies for diarrhea and menstrual conditions. The bark is used for skin injuries, inflammation of the skin, locally inflamed swelling, hemorrhoids, and varicose veins.

Witch hazel dosages

Recommended dosages when using witch hazel are as follows:

- Witch hazel water (distillate) can be used as is or diluted at a 1:3 ratio with water.
- A poultice can be made by using 20–30% of witch hazel in semi-solid preparations.
- For an extract preparation, use a semi-solid and liquid preparation that corresponds to 5–10% of the drug.
- Decoctions of 5–10 grams of witch hazel extract per cup of water can be used for compresses and rinses.
- Ointment or gel is prepared by mixing 5 grams of witch hazel extract in 100 grams of an ointment base.
- The recommended dosage of suppositories is 0.1–1 gram of the drug. Suppositories in the rectum or vagina can be used from one to three times daily.

Applications

Witch hazel is a multi-faceted remedy that is administered in several ways. Applications of witch hazel include:

- Gargle with a decoction of 1 teaspoon of witch hazel bark that has been steeped 10 minutes in boiling water and then strained.
- For skin conditions, ointment or cream can be used twice a day or as needed.
- Tincture can be placed directly on affected areas.
- A poultice can be applied to wounds and sores.
- Witch hazel extracts can be applied in combination with warm, moist compresses in the morning or at bedtime.
- For bruises, a washcloth can be used for a witch hazel compress. An ice cube placed inside the cloth keeps the compress cold and diminishes swelling.

HEMORRHOID RELIEF. Witch hazel's applications include various methods for treating hemorrhoids:

- A hamamelis suppository can be inserted at bedtime to reduce inflammation of a swollen vein.
- For relief of hemorrhoids, Weil recommends moistening toilet paper with witch hazel. This compress is used to clean the anal area after bowel movements.

Combinations

Hemorrhoid treatment accounts for two remedies that combine witch hazel with another herb, such as pilewort. Pilewort is also known as celandine. Another hemorrhoid remedy combines witch hazel with **horse chestnut**.

Furthermore, witch hazel is combined with **aloe** vera in commercial products such as skin care treatments. Home recipes for facial cleanser and mask include witch hazel, **essential oils**, and other ingredients.

Precautions

When witch hazel is administered in designated therapeutic dosages, no health risks have been recorded. However, when witch hazel is taken internally, its tannin content can lead to digestive complaints. Furthermore, in rare cases, liver damage is conceivable following long term administration.

Witch hazel water is intended for external use and most sources cite recommended dosages are for adults. The amount should be adjusted for older people and the chronically ill. Individuals should check with their doctors about use of witch hazel.

External use of witch hazel may result in minor skin irritation for some people. When this occurs, the amount of witch hazel should be diluted.

While it is safe to use witch hazel for gargling, caution should be taken when using it internally. Witch hazel contains small amounts of safrole, a compound that the U. S. Food and Drug Administration (FDA) banned for use in food during the 1960s. That ban came after laboratory animals that ingested large amounts of the compound developed **cancer**. Witch hazel has not yet come under fire for safrole content. However, as of March 2000, there was little research information available. Additional study was needed on the safe use of this home remedy that was a staple for Native Americans.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Side effects

Opinion varies about the side effects caused when witch hazel is taken internally. The tannin content can cause stomach irritation or cramping. A dose of 1 gram of witch hazel will cause **nausea**, **vomiting**, or **constipation**.

The FDA has approved witch hazel distillate as safe for external use. Sources had reported no known side effects as of 2008. However, future studies may provide more information about the safety or side effects of witch hazel.

Interactions

The 1998 Commission E monograph reported no contraindications or interactions related to the use of witch hazel. However, there are well known interactions between many drugs and high tannin herbs that are too numerous to list. Those on blood thinners for circulatory trouble should take internal witch hazel preparations with caution if at all. In addition, witch hazel should not be taken internally with medications containing alkaloids, as it interferes with their absorption. Alkaloid drugs include atropine and codeine.

Resources

BOOKS

Albright, Peter. *The Complete Book of Complementary Therapies*. Allentown, PA: People's Medical Society, 1997.

Castleman, Michael. *The Healing Herbs*. Emmaus, PA: Rodale Press, Inc., 1991.

Keville, Kathi. *Herbs for Health and Healing*. Emmaus, PA: Rodale Press, Inc., 1996.

Lockie, Andrew and Nicola Geddes. *The Complete Guide to Homeopathy*. New York: DK Publishing, 1995.

Medical Economics Company. *PDR for Herbal Medicines*. Montvale, N.J.: Medical Economics Co., 1998.

Ritchason, Jack. *The Little Herb Encyclopedia*. Pleasant Grove, UT: Woodland Health Books, 1995.

Squier, Thomas Broken Bear with Peden, Lauren David. *Herbal Folk Medicine*. New York: Henry Holt and Company, 1997.

Tyler, Varro and Steven Foster. *Tyler's Honest Herbal*. Binghampton, NY: The Haworth Herbal Press, 1999.

PERIODICALS

Choi, H. R., J. Choi, Y. N. Han, et al. "Peroxynitrite Scavenging Activity of Herb Extracts." *Phytotherapy Research* 16 (June 2002): 364-367.

Habtemariam, S. "Hamamelitannin from *Hamamelis virginiana* Inhibits the Tumour Necrosis Factor-Alpha (TNF)-Induced Endothelial Cell Death in Vitro." *Toxicon* 40 (January 2002): 83-88.

Hughes-Formella, B. J., A. Filbry, J. Gassmüller, and F. Rippke. "Anti-inflammatory Efficacy of Topical Preparations with 10% Hamamelis Distillate in a UV Erythema Test." *Skin Pharmacology and Applied Skin Physiology* 15 (March-April 2002): 125-132.

ORGANIZATIONS

American Botanical Council. P.O. Box 201660, Austin TX, 78720. (512) 331-8868. http://www.herbalgram.org.

Herb Research Foundation. 1007 Pearl St., Suite 200, Boulder, CO 80302. (303) 449-2265. http://www.herbs.org.

OTHER

Ask Dr. Weil. http://www.askdrweil.com.

Holistic OnLine. http://www.holisticonline.com.

Liz Swain
Rebecca J. Frey, PhD

Worms

Definition

Worms are parasitic, soft-bodied organisms that can infect humans and animals. Parasitic worms fall into several different classes and include flukes, roundworm, and tapeworm.

Description

Worms are parasites that live within a host organism (human or animal) for the purpose of obtaining food. This relationship causes harm to the host, and, with severe cases of infection, can be fatal. The term worms commonly refers to intestinal worms, although worms can infect other organs and the blood stream. Intestinal worms are helminths and fall into three classes: cestodes (tapeworms), nematodes (roundworms), and trematodes (flukes).

Cestodes

Tapeworms have a ribbon-like body composed of a scolex, which attaches the worm to the intestinal wall, and a long chain of progressively developing proglotids. Proglottids at the tail end of the worm contain eggs. Tapeworms can have 3–4,000 proglotids and be several meters long. Tapeworms that infect humans include *Taenia saginata*, *Taenia solium*, *Hymenolepsis nana*, and *Diphyllobothrium latum*. Tapeworms live in the small intestine and absorb food from the intestinal contents.

The complex life cycles of cestodes differ with each genus and involve two or three different hosts. In general, one host (the intermediate host) ingests

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

eggs that develop into a larval stage. A second host (the definitive host) ingests the larva which develop into adult worms in the intestine. Humans can become infected with tapeworm by eating raw or inadequately cooked, contaminated fish, pork, or beef. Humans can serve as both intermediate and definitive hosts for certain cestodes. Although humans can experience severe disease when serving as an intermediate host, they may show few signs of disease when harboring adult tapeworms.

Nematodes

Intestinal nematodes, or roundworms, are the most worm-like of all the helminths and resemble the earthworm. Nematodes have a mouth with either three lips or teeth (hookworms), a complete digestive tract, and separate sexes. Nematodes can range from a few millimeters to over one meter long. Roundworms that can infect humans include *Trichuris trichiura* (whipworm), *Enterobius vermicularis* (pinworm), *Capillaria philippinensis*, *Trichostrongylus* species, *Ascaris lumbricoides*, *Ancylostoma duodenale* (hookworm), *Necator americanus* (hookworm), and *Strongyloides stercoralis*. Infection occurs following contact (ingestion or skin) with contaminated soil. Pinworms are not uncommon in children and are easily spread to other family members.

There are five stages (four larval and one adult) in the life cycle of the roundworm. Each genus has a unique life cycle that can be classified into one of three patterns. A person becomes infected by ingesting eggs or larva or through skin penetration by larva. Once ingested, depending upon the genus, eggs may either develop into adult worms in the intestines, or a larval stage may gain access to the bloodstream, enter the lungs, be swallowed, and then develop into adult worms in the intestines. For certain genera, larva penetrate the skin, arrive at the lungs via the bloodstream, are swallowed, and become mature worms in the intestines. Eggs are passed out in the stool, or with pinworms, the female lays eggs on the skin surrounding the anal opening.

Trematodes

Trematodes, or flukes, are flat, leaf-shaped, and range in length from a few millimeters to 75 millimeters. Intestinal flukes are primarily found in the Asian continent. Intestinal flukes that can infect humans are *Fasciolopsis buski*, *Heterophyes heterophyes*, *Metagonimus yokogawai*, *Echinostoma* species, and *Nanophyetus salmincola*).

KEY TERMS

Atopy—An inherited type of allergic hypersensitivity associated with IgE antibodies. Studies of the effects of worm infestation on the human immune system are providing new clues to the prevention of atopy.

Cestodes—Tapeworms, which are long, flat, segmented parasitic intestinal worms.

Definitive host—The host organism for the final (adult) stage in the life cycle of a parasite.

Helminth—A general term for a parasitic worm.

Intermediate host—The host organism for an intermediate (larval) stage in the life cycle of a parasite.

Nematodes—Roundworms, which are parasitic intestinal worms resembling earthworms.

Parasite—An organism that lives on or within a host organism for the purpose of obtaining food.

Trematodes—Flukes, which are flat, leaf-shaped parasitic worms.

Trichinellosis—A parasitic disease caused by tissue-dwelling roundworms of the species *Trichinella spiralis*, usually acquired by eating infected meat.

The life cycles of all flukes involve freshwater snails as an intermediate host. Flukes are contracted by ingestion of eggs or encysted (encased) larva from contaminated water, raw water plants (water chestnuts, water bamboo shoots, etc.), or raw or inadequately cooked fish or snails. The eggs or larva mature into adult worms in the intestines.

Causes and symptoms

Infection by worms is caused by the ingestion of or skin contact with helminth eggs or larva, as described above.

Symptoms of helminth **infections** vary depending upon the genera and number of worms involved. Infection with adult tapeworms often causes no symptoms, however, some patients may experience **diarrhea**, abdominal **pain**, **anemia**, and/or **vitamin B_{12}** deficiency. Roundworm infection often causes no symptoms but some patients may experience abdominal pain, diarrhea, growth retardation, anemia, and bloody, mucousy stools. Pinworms cause irritated, itchy skin surrounding the anal opening. **Itching** may be more severe at night and interfere with sleep. Mild infection with flukes may cause no symptoms, but

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

heavy infections can cause diarrhea, abdominal pain, and profuse stools containing undigested food.

One side effect of worm infestation that is presently being studied for potential applications in treating atopy (a type of inherited allergic response) is the release of certain anti-inflammatory chemicals in the body. These chemicals, called cytokines, may prove to be useful in preventing atopy.

Diagnosis

The patient will be questioned about travel and ingestion of high-risk foods. Worms are diagnosed by microscopic examination of stool samples to identify eggs and adult worms. Three samples may be taken: two from normal bowel movements and one following the use of a laxative. Pinworms are diagnosed using the "Scotch tape" method in which a piece of tape is applied to the skin surrounding the anal opening. Pinworm eggs, and occasionally an adult worm, adhere to the tape and are identified by microscopic examination.

Treatment

Although alternative remedies may help treat worms, the patient should consult a physician to obtain an accurate diagnosis and appropriate antihelmintic medication.

Dietary modifications help to rid a person of worm infection. Processed foods and foods that contain sugar, white flour, and milk products should be avoided. The diet should be comprised of 25% fat, 25% protein, and 50% complex carbohydrates. At least two tablespoons of unprocessed sesame, safflower, canola, or flax oil should be taken daily.

Herbals

Herbals that may kill and expel worms include:

- aloe (*Aloe vera*)
- ash (*Fraxinus americana*) bark ashes
- bayberry (*Myrica cerifera*) bark tea
- black walnut bark
- *Brassica oleracea* decoction
- butternut root bark
- citrin (*Garcinia cambogia*) extract
- clove (*Eugenia caryophyllus*)
- cranberry powder
- erba ruggine (*Ceterach officinarum*)
- fennel (*Foeniculum officinale*)
- garlic (*Allium sativum*)
- *Chenopodium ambrosioides*
- ginger (*Zingiber officinale*)
- goldenseal (*Hydrastis canadensis*)
- lemon (*Citrus limon*)
- male fern
- orange (*Citrus sinensis*) peel
- onion (*Allium cepa*)
- palmarosa (*Cymbopogon martinii*)
- pinkroot (*Spigelia*)
- pumpkin (*Cucurbita pepo*) seeds
- *Punica granatum* bark infusion
- sage (*Salvia officinalis*)
- tansy
- wood betony (*Stachys officinalis*) tea
- wormwood (*Artemisia absinthium*) tincture

Chinese herbal medicines

Roundworms are treated with the herbs Chuan Lian Gen Pi (*Cortex meliae radicis*) and Bing Lang (*Semen arecae*) and the patent medicines Wu Mei Wan (Mume Pill) and Qu Hui Wan (Dispel Roundworms Pill). Pinworms are treated with the herbs Ku Lian Gen Pi (*Cortex meliae radicis*) and Shi Jun Zi (*Fructus quisqualis*). Flukes are treated with the herbs Bing Lang (*Semen arecae*) and a mixture of Bing Lang (*Semen arecae*), Da Huang (*Radix et rhizoma rhei*), and Qian Niu Zi (*Semen pharbitidis*). Hookworm is treated with the herbs Lei Wan (*Sclerotium omphaliae*) and a combination of Guan Zhong (*Rhizoma dryopteris crassirhizomae*), Ku Lian Gen Pi (*Cortex meliae radicis*), Tu Jing Jie (*Herba chenopodii ambrosioidis*), and Zi Su Ye (*Folium perillae*).

Other alternative remedies

Other remedies for intestinal worms include:

- Acupuncture. Acupuncture may be used as an adjunct to other treatments to relieve pain and regulate the spleen and stomach.
- Ayurveda. Ayurvedic remedies for pinworms include eating one-quarter teaspoon twice daily with water of the herbal mixture: vidanga (5 parts), shardunika (2 parts), and trikatu (one eight part). Also, the patient may take one half teaspoon triphala in warm water each night.
- Homeopathy. The most common remedy for pinworms is wormseed (*Cina*). Pinworms associated with other conditions are treated with stinging nettle (*Urtica urens*) for hives, Mexican grass (*Sabadilla*) for hay fever, cat thyme (*Teucrium*) for polyps, pinkroot (*Spigelia*) for heart palpitations or facial pain, and krameria (*Ratanhia*) for rectal fissures.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Allopathic treatment

Intestinal worm infection is treated with medications, many of which are effective with one oral dose. Helminth infections are treated with albendazole (Albenza), levamisole (Ergamisol), mebendazole (Vermox), praziquantel (Biltricide), pyrantel (Antiminth, Ascarel, Pin-X), or thiabendazole (Mintezol).

In treating tapeworm infestations, it is important to completely eliminate the head and neck regions of the tapeworm, as the entire worm can regenerate from these parts.

Expected results

Medications are very effective in eliminating helminth infections; however, reinfection is always a possibility. Some types of worms appear to trigger changes in the human immune system that make reifection easier. Patients should be retested following treatment to ensure that the infection has been eliminated. Complications of severe untreated infections include anemia, growth retardation, malnourishment, intestinal blockage, rectal prolapse (when the rectum extrudes out of the anal opening), and death.

Prevention

Most intestinal worm infections may be prevented by properly washing the hands after using the bathroom, washing skin after contact with soil, wearing shoes outside, and eating thoroughly cooked fish, meats (including meat from wild game), and freshwater plants. A number of cases of worm infections caused by eating raw salmon and crayfish were reported in North America in 2003; in addition, there was an outbreak of trichinellosis in Saskatchewan in 2000 that was traced to infected bear meat.

Skin penetration by larva may be reduced by eating foods rich in **vitamin A** including squash, carrots, sweet potatoes, yams, and greens.

People who live on farms, or have dogs or cats as house pets, should have their animals checked by a veterinarian on a regular basis and have them dewormed if necessary.

The Centers for Disease Control and Prevention (CDC) recommends that people traveling abroad should wash their hands with soap and water before handling food; should wash and peel all raw vegetables and fruits before eating; and should drink only bottled or boiled water, or carbonated drinks in cans or bottles.

As of late 2003, researchers in developing countries are working on a vaccine for pigs to help control worms transmitted by pigs to humans; however, the vaccine is not likely to be available for several years.

Resources

BOOKS

"Cestodes (Tapeworms)." Section 13, Chapter 161 in *The Merck Manual of Diagnosis and Therapy*, edited by Mark H. Beers, MD, and Robert Berkow, MD. Whitehouse Station, NJ: Merck Research Laboratories, 2002.

Garcia, Lynne S. and David A. Bruckner. *Diagnostic Medical Parasitology*. Washington, DC: American Society for Microbiology, 1997.

Markell, Edward K., David T. John, and Wojciech A. Krotoski. *Markell and Voge's Medical Parasitology*. 8th edition. Philadelphia: W.B. Saunders Company, 1999.

"Nematode (Roundworm) Infections." Section 13, Chapter 161 in *The Merck Manual of Diagnosis and Therapy*, edited by Mark H. Beers, MD, and Robert Berkow, MD. Whitehouse Station, NJ: Merck Research Laboratories, 2002.

Pearson, Richard D. *Parasitic Diseases: Helminths*. Textbook of Gastroenterology, 3rd edition. Edited by Tadataka Yamada et al. Philadelphia: Lippincott Williams & Wilkins, 1999.

Ying, Zhou Zhong and Jin Hui De. "Common Parasitoses." In *Clinical Manual of Chinese Herbal Medicine and Acupuncture*. New York: Churchill Livingston, 1997.

PERIODICALS

Albonico, Marco, D.W.T. Crompton, and L. Savioli. "Control Strategies for Human Intestinal Nematode Infections." *Advances in Parasitology* (1999): 277-341.

Castilla, E. A., R. Jessen, D. N. Sheck, and G. W. Procop. "Cavitary Mass Lesion and Recurrent Pneumothoraces Due to *Paragonimus kellicotti* Infection: North American Paragonimiasis" *American Journal of Surgical Pathology* 27 (August 2003): 1157–1160.

Couture, C., L. Measures, J. Gagnon, and C. Desbiens. "Human Intestinal Anisakiosis Due to Consumption of Raw Salmon." *American Journal of Surgical Pathology* 27 (August 2003): 1167–1172.

Ferreira, M. B., S. L. da Silva, and A. G. Carlos. "Atopy and Helminths." *Allergy and Immunology (Paris)* 34 (January 2002): 10-12.

Gittleman, Ann Louise. "Parasites." *Total Health* (May/June 1997): 47+.

Guarrera, Paolo Maria. "Traditional Antihelmintic, Antiparasitic and Repellent Uses of Plants in Central Italy." *Journal of Ethnopharmacology* (1999): 183-192.

Jenson, J. S., R. OConnor, J. Osborne, and E. Devaney. "Infection with Brugia Microfilariae Induces Apoptosis of CD4(+) T Lymphocytes: A Mechanism of Immune Unresponsiveness in Filariasis." *European Journal of Immunology* 32 (March 2002): 858-867.

Kumaran, A. M., P. D'Souza, A. Agarwal, et al. "Geraniol, the Putative Anthelmintic Principle of *Cymbopogon martinii*." *Phytotherapy Research* 17 (September 2003): 957.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Roy, S. L., A. S. Lopez, and P. M. Schantz. "Trichinellosis Surveillance—United States, 1997–2001." *Morbidity and Mortality Weekly Report Surveillance Summaries* 52 (July 25, 2003): 1–8.

Schellenberg, R. S., B. J. Tan, J. D. Irvine, et al. "An Outbreak of Trichinellosis Due to Consumption of Bear Meat Infected with *Trichinella nativa*, in 2 Northern Saskatchewan Communities." *Journal of Infectious Diseases* 188 (September 15, 2003): 835–843.

ORGANIZATIONS

American Veterinary Medical Association (AVMA). 1931 North Meacham Road, Suite 100, Schaumburg, IL 60173-4360. http://www.avma.org.

Centers for Disease Control and Prevention. 1600 Clifton Rd., NE, Atlanta, GA 30333. (800) 311-3435, (404) 639-3311. http://www.cdc.gov

Belinda Rowland
Rebecca J. Frey, PhD

Wormwood

Description

Wormwood (*Artemisia absinthium*) is a perennial that is native to Europe and parts of Africa and Asia but now grows wild in the United States. It is extensively cultivated. Also called shrub wormwood, *Artemisia absinthium* is a member of the daisy or Asteraceae family. The species name, *absinthium*, means "without sweetness." Many species of the genus *Artemisia* have medicinal properties.

Wormwood grows alongside roads or paths. This shrubby plant is 1-3 ft (0.3-0.9 m) tall and has gray-green or white stems covered with fine hairs. The yellowish-green leaves are hairy and silky and have glands that contain resinous particles where the natural insecticide is stored. Wormwood releases an aromatic odor and has a spicy, bitter taste.

Constituents and bioactivities

Wormwood contains a wide variety of biologically active compounds that contribute to its medicinal value. The constituents of wormwood include:

- acetylenes (trans-dehydromatricaria ester, C13 and C14 trans-spiroketalenol ethers and others)
- ascorbic acid (vitamin C)
- azulenes (chamazulene, dihydrochamazulenes, bisabolene, camphene, cadinene, sabinene, trans-sabinylacetate, phellandrene, pinene, and others)
- carotenoids
- flavonoids (quercitin 3-glucoside, quercitin 3-rhamnoglucoside, spinacetin 3-glucoside, spinacetin 3-rhamnoglucoside, and others)
- lignins (diayangambin and epiyangambin)
- phenolic acids (p-hydroxyphenylacetic, p-coumaric, chlorogenic, protocatechuic, vanillic, syringic, and others)
- tannins
- thujone and isothujone
- sesquiterpene lactones (absinthin, artabsin, anabsinthin, artemetin, artemisinin, arabsin, artabin, artabsinolides, artemolin, matricin, isoabsinthin, and others)

Wormwood is a strong bitter that affects the bitter-sensing taste buds on the tongue that send signals to the brain to stimulate the entire digestive system (salivation, stomach acid production, intestinal tract movement, etc.). This bitter taste also stimulates the production of bile by the liver and storage of bile in the gall bladder. The azulenes in wormwood have anti-inflammatory activity. The sesquiterpene lactones are insecticidal and have anti-tumor activity. The toxin thujone is a brain stimulant. Wormwood also has anti-inflammatory, antidepressant, carminative (relieves intestinal **gas**), tonic (restores tone to tissues), antibacterial, antifungal, anti-amoebic, antifertility, hepatoprotective (prevents and cures liver damage), febrifugal (reduces **fever**), and vermifugal (expels intestinal **worms**) activities.

General use

Wormwood has been used in European traditional medicine as a restorative of impaired cognitive functions (thinking, remembering, and perception).

Wormwood is often used as a digestive stimulant. It is helpful in treating **indigestion**, **heartburn**, **irritable bowel syndrome**, stomach **pain**, gas, and bloating. By increasing the production of stomach acids and bile, wormwood can be useful to persons with poor digestion. It helps persons recover after a long illness and improves the uptake of nutrients.

As the name suggests, wormwood is used to eliminate intestinal worms, especially pinworms and roundworms. It is also used as an insect repellent and insecticide.

More recently, one of the sesquiterpene lactones, artemisinin, has shown promise as a treatment for **breast cancer**. Artemisinin was extracted from wormwood by the Chinese thousands of years ago to cure **malaria**, and is presently used in Asia and parts of Africa for that purpose. Recent experiments have shown that

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Artemisinin—A compound derived from wormwood that is presently used to treat malaria and shows promise as an anti-cancer treatment.

Bitter—Any herb whose bitter taste stimulates the digestive system. Bitters are used to treat stomach ailments.

Carminative—A preparation that helps to expel gas from the stomach and bowel.

Emmenagogue—A herb or medication that brings on a woman's menstrual period.

Febrifuge—A medication or agent that serves to reduce or dispel fever. Wormwood has febrifugal properties.

Perennial—A plant that regrows from its roots each year.

Thujone—A toxic compound found in wormwood oil that causes hallucinations, tremors, convulsions, sleeplessness, paralysis, stomach problems, and brain damage.

Vermifuge—A medicine that serves to expel worms or other animal parasites from the intestines. Wormwood has vermifugal properties.

artemisinin is effective against the malaria parasite because it reacts with the high levels of **iron** in the parasite to produce free radicals. The free radicals then destroy the cell walls of the malaria parasite. **Cancer** researchers applied the same principle to target cancer cells, which have a higher concentration of iron than normal cells. The researchers tested samples of breast cancer cells and normal breast cells that had first been treated to maximize their iron content and then treated with a water-soluble form of artemisinin. The normal cells showed litle change, but within 16 hours, almost all of the cancer cells were dead.

Wormwood is also helpful in treating gall bladder inflammation, **hepatitis**, **jaundice**, fever, **infections**, and mild **depression**. Wormwood may also protect the liver from harmful chemicals. It may stimulate **menstruation** or miscarriage. It has been used to treat the pains associated with **childbirth**, cancers, muscle aches, arthritic joints, **sprains**, dislocated joints, and broken bones.

Absinthe is a clear green alcoholic beverage that contains essential oil of wormwood and other plant extracts, is highly toxic, and is presently banned in many countries. A favorite liqueur in nineteenth-century France, absinthe was addictive and associated with a collection of serious side effects known as absinthism (irreversible damage to the central nervous system). The toxic component of wormwood that causes absinthism is thujone. Wormwood may contain as much as 0.6% thujone. On the other hand, wormwood soaked in white wine is used to produce the liqueur called vermouth (derived from the German word for wormwood, *Wermuth*), which contains very little thujone.

Preparations

Wormwood is harvested immediately prior to or during flowering in the late summer. All the aerial portions (stem, leaves, and flowers) have medicinal uses. Wormwood is used either fresh or dried.

Wormwood may be taken as an infusion (a tea), as a tincture (an alcohol solution), or in pill form. Wormwood should be taken only under the supervision of a professional. It should be taken in small doses as directed, and for no longer than four to five weeks at a time.

The infusion is prepared by steeping 0.5-2 tsp of wormwood in 1 cup of boiling-hot water for 10-15 minutes. The usual dosage is 3 cups daily, for a period not to exceed four weeks.

Wormwood tincture can be prepared by adding 1.5 cups of fresh, finely chopped wormwood or 8 tbsp of powdered wormwood to 2 cups of whiskey. The herb and alcohol mixture is shaken daily and allowed to steep for 11 days. The solids are strained out and the tincture is stored in a tightly capped bottle in a cool place. This tincture may be used externally (to relieve pain) or internally. Ten to 20 drops of tincture are added to water, which is taken 10–15 minutes before each meal. As with the infusion, wormwood tincture should not be taken for longer than four weeks.

Wormwood preparations are usually sipped because the strong bitter taste is an important component of its therapeutic effect on stomach ailments. The bitter taste of wormwood infusion or tincture may be masked with honey or molasses when the bitter action is not necessary, as in the treatment of worms, fever, or liver ailments.

Powdered wormwood is available in a pill form that can be used in the treatment of intestinal worms. An essential oil of wormwood is available for use in **aromatherapy**; it is toxic if used excessively.

Insect repellent can be made from wormwood by mixing thoroughly crushed fresh wormwood leaves with **apple cider vinegar**. This mixture is put into a small piece of gauze or cheesecloth. The ends are folded up and tied to make a little bag, and the bag is

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

rubbed over the skin of humans or pets to repel mosquitoes, gnats, and horseflies.

Precautions

Excessive use of wormwood leads to toxic levels of thujone in the body. The long-term use of wormwood oil containing thujone, or alcoholic drinks containing thujone oil (e.g., absinthe) can be addictive and cause seizures, brain damage, temporary kidney failure, and possibly death. Using wormwood for longer than four weeks or at higher than recommended doses may lead to **nausea**, **vomiting**, restlessness, **insomnia**, vertigo, tremors, and seizures. Women who are pregnant or lactating (breast feeding) should not use wormwood.

Side effects

Significant side effects are not encountered when wormwood is taken in small doses for only two to four weeks. One report stated, however, that using as much as 1 mL of wormwood tincture three times a day for up to nine months caused no side effects.

The U. S. Food and Drug Administration (FDA) states that wormwood may cause neurological symptoms, including delirium, paralysis, loss of intellect, and numbness of the legs and arms. The side effects associated with absinthism include auditory (hearing) and visual (seeing) hallucinations; tremors and convulsions; sleeplessness; paralysis; stomach problems; brain damage; and an increased risk of psychological disorders and suicide.

Interactions

As of 2008, there are no identified interactions between wormwood and any other drug or herbal medicine.

Resources

BOOKS

Chevallier, Andrew. *The Encyclopedia of Medicinal Plants.* New York: DK Publishing, 1996.

Heinerman, John. *Heinerman's Encyclopedia of Healing Herbs and Spices.* Englewood Cliffs, NJ: Parker Publishing Company, 1996.

PERIODICALS

"Ancient Chinese Folk Remedy May Hold Key to Nontoxic Cancer Treatment." *Health & Medicine Week* (December 17, 2001): 6.

Belinda Rowland
Rebecca J. Frey, PhD

Wounds

Definition

A wound occurs when the integrity of any tissue is compromised, for example, when skin breaks, muscle tears, **burns**, or bone **fractures**. A wound may be caused by an act, such as a gunshot, fall, or surgical procedure; by an infectious disease; or by an underlying condition.

Description

Types and causes of wounds are wide ranging, and health care professionals have several different ways of classifying them. They may be chronic, such as the skin ulcers caused by **diabetes mellitus**, or acute, such as a gunshot wound or animal bite. Wounds may also be referred to as open, in which the skin has been compromised and underlying tissues are exposed, or closed, in which the skin has not been compromised, but trauma to underlying structures has occurred, such as a bruised rib or cerebral contusion. Emergency personnel and first-aid workers generally place acute wounds in one of eight categories:

- Abrasions. Also called scrapes, they occur when the skin is rubbed away by friction against another rough surface (e.g. rope burns and skinned knees).
- Avulsions. These occur when an entire structure or part of it is forcibly pulled away, such as the loss of a permanent tooth or an ear lobe. Explosions, gunshots, and animal bites may cause avulsions.
- Contusions. Also called bruises, these result from forceful trauma that injures an internal structure without breaking the skin. Blows to the chest, abdomen, or head with a blunt instrument (e.g. a football or a fist) can cause contusions.

Ulcerated wound on a limb stump. *(Custom Medical Stock Photo. Reproduced by permission.)*

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

- Crush wounds occur when a heavy object falls onto a person, splitting the skin and shattering or tearing underlying structures.
- Cuts are slicing wounds made with a sharp instrument, leaving even edges. They may be as minimal as a paper cut or as significant as a surgical incision.
- Lacerations. Also called tears, these are separating wounds that produce ragged edges. They are produced by a tremendous force against the body, either from an internal source as in childbirth, or from an external source like a punch.
- Missile wounds. Also called velocity wounds, they are caused by an object entering the body at a high speed, typically a bullet.
- Punctures are deep, narrow wounds produced by sharp objects such as nails, knives, and broken glass.

Causes and symptoms

Acute wounds have a wide range of causes. Often, they are the unintentional results of motor vehicle accidents, falls, mishandling of sharp objects, or sports-related injury. Wounds may also be the intentional result of violence involving assault with weapons, including fists, knives, or guns.

The general symptoms of a wound are localized **pain** and bleeding. Specific symptoms include:

- An abrasion usually appears as lines of scraped skin with tiny spots of bleeding.
- An avulsion has heavy, rapid bleeding and a noticeable absence of tissue.
- A contusion may appear as a bruise beneath the skin or may appear only on imaging tests; an internal wound may also generate symptoms such as weakness, perspiration, and pain.
- A crush wound may have irregular margins like a laceration; however, the wound will be deeper and trauma to muscle and bone may be apparent.
- A cut may have little or profuse bleeding depending on its depth and length; its even edges readily line up.
- A laceration too may have little or profuse bleeding; the tissue damage is generally greater and the wound's ragged edges do not readily line up.
- A missile entry wound may be accompanied by an exit wound, and bleeding may be profuse, depending on the nature of the injury.
- A puncture wound will be greater than its length, therefore there is usually little bleeding around the outside of the wound and more bleeding inside, causing discoloration.

KEY TERMS

Abrasion—Also called a scrape. The rubbing away of the skin surface by friction against another rough surface.

Avulsion—The forcible separation of a piece from the entire structure.

Butterfly bandage—A narrow strip of adhesive with wider flaring ends (shaped like butterfly wings) used to hold the edges of a wound together while it heals.

Cut—Separation of skin or other tissue made by a sharp edge, producing regular edges.

Laceration—Also called a tear. Separation of skin or other tissue by a tremendous force, producing irregular edges.

Plasma—The straw-colored fluid component of blood, without the other blood cells.

Puncture—An injury caused by a sharp, narrow object deeply penetrating the skin.

Tourniquet—A device used to control bleeding, consisting of a constricting band applied tightly around a limb above the wound. It should only be used if the bleeding in life-threatening and cannot be controlled by other means.

Traumatic shock—A condition of depressed body functions as a reaction to injury with loss of body fluids or lack of oxygen. Signs of traumatic shock include weak and rapid pulse, shallow and rapid breathing, and pale, cool, clammy skin.

Whole blood—Blood that contains red blood cells, white blood cells, and platelets in plasma.

Diagnosis

A diagnosis is made by visual examination and may be confirmed by a report of the causal events. Medical personnel will also assess the extent of the wound and what effect it has had on the patient's well being (e.g. profound blood loss, damage to the nervous system or skeletal system). In cases of severe injury, or when a physician suspects possible internal injury, tests might be made to determine the extent of a wound. In late 2001, a new ultrasound (imaging inside the body via sound waves)technique was introduced that might help doctors diagnose internal bleeding, a serious complication of some injuries. The technique could help prevent invasive surgery for diagnosis.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Treatment

Treatment of wounds involves stopping any bleeding, then cleaning and dressing the wound to prevent infection. Additional medical attention may be required if the effects of the wound have compromised the body's ability to function effectively.

Stopping the bleeding

Most bleeding may be stopped by direct pressure. Direct pressure is applied by placing a clean cloth or dressing over the wound and pressing the palm of the hand over the entire area. This limits local bleeding without disrupting a significant portion of the circulation. The cloth absorbs blood and allows clot formation; the clot should not be disturbed, so if blood soaks through the cloth, another cloth should be placed directly on top rather than replacing the original cloth.

If the wound is on an arm or leg that does not appear to have a broken bone, the wound should be elevated to a height above the person's heart while direct pressure is applied. Elevating the wound allows gravity to slow down the flow of blood to that area.

If severe bleeding cannot be stopped by direct pressure or with elevation, the next step is to apply pressure to the major artery supplying blood to the area of the wound. In the arm, pressure would be applied to the brachial artery by pressing the inside of the upper arm against the bone. In the leg, pressure would be applied to the femoral artery by pressing on the inner crease of the groin against the pelvic bone.

If the bleeding from an arm or leg is so extreme as to be life-threatening and if it cannot be stopped by any other means, a tourniquet—a device used to check or prevent bleeding or blood flow—may be required. However, in the process of limiting further blood loss, the tourniquet also drastically deprives the limb tissues of oxygen. As a result, the patient may live but the limb may die.

Dressing the wound

Once the bleeding has been stopped, cleaning and dressing the wound is important for preventing infection. Although the flowing blood flushes debris from the wound, running water should also be used to rinse away dirt. Embedded particles such as wood slivers and glass splinters, if not too deep, may be removed with a needle or pair of tweezers that has been sterilized in rubbing alcohol or in the heat of a flame. Once the wound has been cleared of foreign material and washed, it should be gently blotted dry, with care not to disturb the blood clot. An antibiotic ointment may be applied. The wound should then be covered with a clean dressing and bandaged to hold the dressing in place.

Homeopathic remedies

In addition to the conventional treatments described above, there are alternative therapies that may help support the injured person. **Homeopathy** can be very effective in acute wound situations. **Ledum** (*Ledum palustre*) is recommended for puncture wounds (taken internally). **Calendula** (*Calendula officinalis*) is the primary homeopathic remedy for wounds.

Other effective treatments

An antiseptic, it is used topically as a succus (juice), tea, or salve. Another naturally occurring antiseptic is **tea tree oil** (*Melaleuca* spp.), which can be mixed with water for cleaning wounds. **Aloe** (*Aloe barbadensis*) can be applied topically to soothe skin during healing. When wounds affect the nerves, especially in the arms and legs, **St. John's wort** (*Hypericum perforatum*) can be helpful when taken internally or applied topically. Also, an important Chinese herb preparation called Yunnan Bai Yao, which includes the main herbal ingredient san chi, is used very effectively to stop bleeding, and promote healing for all sorts of wounds. Other hearbal remedies include Hypericum for nerve pain, and **arnica** for soft tissue damage. **Acupuncture** can help support the healing process by restoring the energy flow in the meridians that have been affected by the wound. In some cases, **vitamin E** taken orally or applied topically can speed healing and lessen scarring.

Allopathic treatment

A person who has become impaled on a fixed object, such as a fence post or a stake in the ground, should only be moved by emergency medical personnel. Foreign objects embedded in the eye should only be removed by a doctor. Larger penetrating objects, such as a fishhook or an arrow, should only be removed by a doctor to prevent further damage as they exit.

Additional medical attention is necessary in several instances. Wounds that penetrate the muscle beneath the skin should be cleaned and treated by a doctor. Such a wound may require stitches to keep it closed during healing. Some deep wounds which do not extend to the underlying muscle may only require butterfly bandages to keep them closed during healing. Wounds to the face and neck, even small ones, should always be examined and treated by a doctor to preserve sensory function and minimize scarring. Deep

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

wounds to the hands and wrists should be examined for nerve and tendon damage. Puncture wounds may require a **tetanus** shot to prevent serious infection. Animal **bites** should always be examined and the possibility of **rabies** infection determined.

Infection

Wounds that develop signs of infection should also be brought to a doctor's attention. Signs of infection are swelling, redness, tenderness, throbbing pain, localized warmth, **fever**, swollen lymph glands, the presence of pus either in the wound or draining from it, and red streaks spreading away from the wound.

Emergency treatment

With even as little as one quart of blood lost, a person may lose consciousness and go into traumatic shock. Because this is life-threatening, emergency medical assistance should be called immediately. If the person stops breathing, artificial respiration (also called mouth-to-mouth resuscitation or rescue breathing) should be administered. In the absence of a pulse, cardiopulmonary resuscitation (CPR) must be performed. Once the person is breathing unassisted, the bleeding may be attended to.

In cases of severe blood loss, medical treatment may include the intravenous replacement of body fluids. This may be infusion with saline or plasma, or a transfusion of whole blood.

Expected results

Without the complication of infection, most wounds heal well with time. Depending on the depth and size of the wound, it may or may not leave a visible scar.

Prevention

Most actions that result in wounds are preventable. Injuries from motor vehicle accidents may be reduced by wearing seat belts and placing children in size-appropriate car seats in the back seat. Sharp, jagged, or pointed objects or machinery parts should be used according to the manufacturer's instructions and only for their intended purpose. It is important to educate children on the proper way to hold and handle sharp objects, or keep them out of the reach of children. Firearms and explosives should be used only by adults with explicit training; they should also be kept locked and away from children. Persons engaging in sports, games, and recreational activities should wear all proper protective equipment and follow safety rules.

Resources

BOOKS

American Red Cross Staff. *Standard First Aid.* St. Louis: Mosby Yearbook, 1992.

The Editors of Time-Life Books. *The Medical Advisor: The Complete Guide to Alternative and Conventional Treatments.* Alexandria, VA: Time-Life Books, 1996.

PERIODICALS

"Sound Waves Beat the Knife." *The Economist* (December 8, 2001).

ORGANIZATIONS

American Red Cross. P.O. Box 37243, Washington, D.C. 20013. http://www.redcross.org.

Kathleen Wright
Teresa Norris

Writing therapy *see* **Journal therapy**
Wu bing shao *see* **Pinellia**
Wu wei zi *see* **Schisandra**

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

XYZ

Xin yi hua *see* **Magnolia**

Yarrow

Description

Yarrow (*Achillea millefolium*) is an aromatic member of the Asteraceae (Compositae) family. This perennial European native with lovely, fern-like foliage is also named millefoil, or thousand leaves, because of its finely-divided leaves. There are many species and subspecies of yarrow, including a similar native American variety known as *A. Millefolium var. lanulosa*. Yarrow is naturalized throughout North America and can be found growing wild in meadows, fields, and along roadsides. Introduced to North America by early colonists, yarrow soon became a valued remedy used by many tribes of indigenous people. American Shakers gathered yarrow for use in numerous medicinal preparations. The plant was listed in the official *U.S. Pharmacopoeia* from the mid- to late nineteenth century.

Yarrow's hardy rhizome, or underground stem, develops from underground runners as the extensive root system spreads. The lacy, finely-divided leaves are multi-pinnate, and grow alternately, clasping at the base along the simple, erect and angular stem. The feather-like leaves may reach 6 in (15.2 cm) in length. They mound near the ground in early growth; then the slightly hairy stems reach upwards to 3 ft (0.91 m) in height during flowering. The tiny blossoms may be rose or lilac colored, or a creamy white; they flower from June until October. Yarrow blossoms grow in flat-topped composite clusters at the top of the stems.

Human relationships with this healing plant reach back to ancient times. The fossilized pollen of yarrow has been found in Neanderthal burial caves from as far back as 60,000 years. Yarrow has long been associated with magic and divination, and is considered by some folk herbalists as a sacred plant with special spiritual powers to offer protection. Yarrow stalks are traditionally used to cast the *I Ching*, the Chinese book of prophecy. The herb was also believed to be useful in love charms and in conjuring. One folk name for yarrow is devil's **nettle**. Other names include bloodwort, carpenter's weed, sanguinary, staunchweed, dog daisy, old man's pepper, field **hops**, nosebleed, knight's milfoil, soldier's woundwort, and military herb. Yarrow accompanied soldiers into battle and was relied upon for its hemostatic action to treat **wounds**. This use may have been the source of yarrow's generic name, taken from the legend of Achilles. The Greek hero is said to have used yarrow in the Trojan War to staunch the blood flowing from the wounds of fallen comrades. Yarrow was used in battlefield first aid as recently as World War I (1914–1918).

General use

Scientists have identified over one hundred active chemical compounds in yarrow, including the intensely blue-colored azulene derivatives found in the essential oil of yarrow and at least two species of **chamomile** (*Chamaemelum nobile (L.)* and *Matricaria recutita*). Other chemical constituents in yarrow include lactones, flavonoids, tannins, coumarins, saponins, sterols, sugars, a bitter glyco-alkaloid, and **amino acids**. The aerial parts of yarrow, particularly the wild white-flowered variety, are most often used in medicinal remedies.

External uses

Yarrow is well known for its wound healing capabilities, particularly in staunching the flow of blood. The herb is considered a vulnerary and hemostatic with antiseptic and antibacterial properties. The astringent action of the leaf, when inserted into a nostril, may stop a nosebleed. An infusion of the leaf, stems, and flowers will speed the healing of **rashes**, **hemorrhoids**, and skin ulcers. Dried and powdered yarrow sprinkled on **cuts** and abrasions may also facilitate healing. Native Americans used yarrow in poultice form to treat skin

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Yarrow. This perennial European native with fern-like foliage is also named millefoil, or thousand leaves, because of its finely-divided leaves. *(© Arco Images / Alamy)*

problems. Infusions of yarrow have been used as a hair rinse in attempts to prevent baldness.

Internal uses

In folk medicine, freshly gathered yarrow root mashed in whiskey was used as a primitive anesthetic. Yarrow has also been used to stop internal bleeding, and as a bitter digestive tonic. Its emmenagogic action promotes the flow of bile. Yarrow tea taken warm acts as a diaphoretic, or medication given to induce sweating. It is particularly beneficial in the treatment of **fever**, colds, and **influenza**, as well as the early stages of **measles** and **chickenpox**. The essential oil, extracted by steam distillation of the flowers, is dark blue in color and has anti-inflammatory, anti-allergenic, and anti-spasmodic properties. Fresh yarrow leaf chewed slowly is said to relieve **toothache**. The herb has also been used to induce nosebleed in an attempt to relieve **migraine headache**. Yarrow appears to be beneficial in reducing high blood pressure. Flavonoids in the herb act to dilate the peripheral arteries and help to clear **blood clots**.

KEY TERMS

Astringent—A substance that causes soft tissue to contract or constrict. Yarrow has some astringent properties.

Diaphoretic—A substance or medication given to induce or promote sweating.

Hemostatic—A substance used to stop bleeding or hemorrhaging. Yarrow has hemostatic properties.

Infusion—The most potent type of extraction of a herb into water. Infusions are steeped for a longer period of time than teas.

Pinnate—Having leaflets arranged on each side of a common stalk. Yarrow has a multi-pinnate leaf.

Tincture—The extraction of a herb into an alcohol solution for either internal or external use.

Vulnerary—A substance or medication used to speed the healing of external wounds. Yarrow was traditionally used as a vulnerary.

Preparations

Yarrow should be harvested while the herb is in flower, on a dry day after the morning dew has evaporated. The leaves, stems, and blossoms are all used medicinally. The leaves should be cut from the stems and spread out on a paper-lined tray to dry in a bright, airy room, out of direct sunlight. Blossoms may be left on the stems and hung in small bunches upside-down in a very warm room. Dried flowers should be stored separately, and dry stems cut into small segments before storage in an airtight, dark glass container, clearly labeled to indicate the contents and the date and place of harvest.

Leaf infusion: Place 2 oz of fresh yarrow leaf, less if dried, in a warmed glass container. Bring 2.5 cups of fresh, nonchlorinated water to the boiling point and add it to the yarrow. Cover. Steep the tea for 10 to 15 minutes, then strain. Drink warm or cold throughout the day, up to three cups per day. The prepared tea can be stored for about two days in the refrigerator.

Tincture: Combine 4 oz of fresh yarrow leaf and stalks cut fine (or 2 oz dry powdered herb) with 1 pint of brandy, gin, or vodka in a glass container. The alcohol should be enough to cover the plant parts and have a 50/50 ratio of alcohol to water. Cover and store the mixture away from the light for about two weeks,

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

shaking several times each day. Strain and store in a tightly capped, clearly labeled dark glass bottle. A standard dose is 10 to 15 drops of the tincture in water, up to three times a day.

Precautions

Yarrow may have a cumulative medicinal effect on the system. Patients should avoid the frequent use of yarrow in large doses for long periods of time. Yarrow is a uterine stimulant; pregnant or lactating women should therefore not use the herb internally.

Side effects

People with **allergies** to ragweed, another member of the Asteraceae family of plants, may also want to avoid taking yarrow internally. In some cases yarrow may cause skin rashes or photosensitivity after ingestion.

Interactions

No interactions between yarrow and standard pharmaceutical preparations have been reported.

Resources

BOOKS

Coon, Nelson. *An American Herbal: Using Plants For Healing*. Emmaus, PA: Rodale Press, 1979.

Foster, Steven, and James A. Duke. *Peterson Field Guide to Eastern/Central Medicinal Plants*. New York: Houghton Mifflin Company, 1990.

Hutchens, Alma R. *A Handbook of Native American Herbs*. Boston: Shambhala, 1992.

McIntyre, Anne. *The Medicinal Garden*. New York: Henry Holt and Company, 1997.

Ody, Penelope. *The Complete Medicinal Herbal*. New York: Dorling Kindersley, 1993.

PDR for Herbal Medicines. Montvale, NJ: Medical Economics Company, 1998.

Tyler, Varro E., Ph.D. *The Honest Herbal*. New York: Pharmaceutical Products Press, 1993.

OTHER

Alternative Herbal Index. http://www.onhealth.com.

Clare Hanrahan

Yeast infection

Definition

Yeast infection is most often caused by a species of the yeast *Candida*, most commonly *Candida albicans*, thus it is often referred to as candidiasis.

Oral candidiasis, also known as thrush, on an infant's tongue. *(Photo Researchers, Inc. Reproduced by permission.)*

Candida is a common cause of vaginal **infections** in women, and *Candida* may cause mouth infections in people with reduced immune function, or in patients taking certain antibiotics. *Candida* can be found in virtually all normal people, but causes problems in only a fraction. In recent years, however, several serious categories of candidiasis have become more common, due to the increased use of antibiotics, the rise of **AIDS**, the increase in the number of organ transplantations, and the use of invasive devices (catheters, artificial joints and valves)—all of which increase a patient's susceptibility to infection.

Description

Vaginal candidiasis

More than one million women in the United States develop vaginal yeast infections each year. It is not life-threatening, but it can be uncomfortable and frustrating.

Oral candidiasis

This disorder, also known as thrush, causes white, curd-like patches in the mouth or throat.

Deep organ candidiasis

Also known as invasive candidiasis, deep organ candidiasis is a serious systemic infection that can affect the esophagus, heart, blood, liver, spleen, kidneys, eyes, and skin. Like vaginal and oral candidiasis, it is an opportunistic disease that strikes when a person's resistance is lowered, often due to another illness. There are many diagnostic categories of deep organ candidiasis, depending on the tissues involved.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Biopsy—The removal and examination of tissue from a live body.

Colonize—To become established in a host.

Granulocytopenia—A condition characterized by a deficiency of white blood cells.

Nasogastric—Tube inserted through the nasal passages into the stomach.

Opportunistic—Infection caused by microorganisms that are usually harmless, but which can cause disease when a host's resistance is lowered.

Systemic—Afflicting an entire body system or the body in general.

Causes and symptoms

Vaginal candidiasis

Most women with vaginal candidiasis experience severe vaginal **itching**. They also have a discharge that often looks like cottage cheese and has a sweet or bread-like odor. The vulva and vagina can be red, swollen, and painful. Sexual intercourse may also be painful.

Oral candidiasis

Whitish patches can appear on the tongue, inside of the cheeks, or the palate. Oral candidiasis typically occurs in people with abnormal immune systems. These can include people undergoing chemotherapy for cancer, people taking immunosuppressive drugs to protect transplanted organs, or people with HIV infection.

Deep organ candidiasis

Anything that weakens the body's natural barrier against colonizing organisms, including stomach surgery, **burns**, nasogastric tubes, and catheters, can predispose a person for deep organ candidiasis. Rising numbers of AIDS patients, organ transplant recipients, and other individuals whose immune systems are compromised help account for the dramatic increase in deep organ candidiasis in recent years. Patients with granulocytopenia (deficiency of white blood cells) are particularly at risk for deep organ candidiasis.

Diagnosis

Often clinical appearance gives a strong suggestion about the diagnosis. Generally, a clinician will take a sample of the vaginal discharge or swab an area of oral plaque, and then inspect this material under a microscope. Under the microscope, it is possible to see characteristic forms of yeasts at various stages in the life cycle.

Fungal blood cultures should be taken for patients suspected of having deep organ candidiasis. Tissue biopsy may be required for a definitive diagnosis.

Treatment

Home remedies for vaginal candidiasis include vinegar douches or insertion of a paste made from *Lactobacillus acidophilus* powder into the vagina. In theory, these remedies will make the vagina more acidic, and therefore, less hospitable to the growth of *Candida*. Also effective for treatment is the dietary additions of berberis, **thyme**, grapefruit seed extract, and tea tree. Fresh **garlic** (*Allium sativum*) is believed to have antifungal action, so incorporating it into the diet or inserting a peeled garlic clove wrapped in gauze into the vagina may be helpful. The insert should be changed twice daily. Some women report success with these remedies; they should try a conventional treatment if an alternative remedy is not effective, or seek the advice from a licensed naturopathic physician.

Some prescription drugs, particularly antibiotics, may disrupt the bacteria normally present in the intestine and vagina, causing the unpleasant symptoms of **constipation**, diarrhea, or **vaginitis**. Because *Lactobacillus acidophilus* is one such regular inhabitant that can prevent bacterial or yeast overgrowth, consumption of yogurt or *L. bacillus* capsules or tablets has been found to be effective in decreasing the incidence of candidiasis.

Allopathic treatment

Vaginal candidiasis

In most cases, vaginal candidiasis can be treated successfully with a variety of over-the-counter antifungal creams or suppositories. These include Monistat, Gyne-Lotrimin, and Mycelex. However, infections often recur. If a women has frequent recurrences, she should consult her doctor about prescription drugs such as Vagistat-1, Diflucan, and others.

Oral candidiasis

This is usually treated with prescription lozenges or mouth washes. Some of the commonly used prescriptions are nystatin mouthwashes (Nilstat or Nitrostat) and clotrimazole lozenges.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Deep organ candidiasis

The recent increase in deep organ candidiasis has led to the creation of treatment guidelines. Patients who have been diagnosed with deep organ candidiasis should have catheters removed, and antifungal chemotherapy should be started to prevent the spread of the disease. Drugs should be prescribed based on a patient's specific history and defense status.

Expected results

Vaginal candidiasis

Although most cases of vaginal candidiasis are cured reliably, these infections can recur. To limit recurrences, women may need to take a prescription antifungal drug such as terconazole (sold as Terazol), or take other antifungal drugs on a preventive basis.

Oral candidiasis

These infections can also recur, sometimes because the infecting Candida develops resistance to one drug. Therefore, a physician may need to prescribe a different drug.

Deep organ candidiasis

The prognosis depends on the category of disease, as well as the condition of the patient when the infection strikes. Patients who are already suffering from a serious underlying disease are more susceptible to deep organ candidiasis that spreads throughout the body.

Prevention

Because *Candida* is part of the normal group of microorganisms that co-exist with all people, it is impossible to avoid contact with it. Good vaginal hygiene and good oral hygiene might reduce problems, but they are not guarantees against candidiasis. Other risk factors include low protein or vegetarian **diets**, a diet high in sugar, and use of antibiotics. There are also a number of ways vaginal candidiasis may be avoided:

- Frequent douching and use of feminine sprays and bath products should be avoided, as these products may disturb the normal vaginal pH balance.
- Drying the outside vaginal area thoroughly, and avoiding prolonged wear of a wet bathing suit, or damp undergarments.
- Wiping from the front to the rear, away from the vagina, after a bowel movement or urination.
- Avoiding sexual intercourse during treatment.
- Using unscented sanitary pads during menstruation.
- The use of cotton underpants, and the avoidance of tight fitting clothing.

Because hospital-acquired (nosocomial) deep organ candidiasis is on the rise, people need to be made aware of it. Patients should be sure that catheters are properly maintained and used for the shortest possible time. The frequency, length, and scope of courses of antibiotic treatment should also be cut back.

Resources

BOOKS

Carlson, K.J., S.A. Eisenstat, and T. Ziporyn. *The Harvard Guide to Women's Health*. Harvard University Press, 1996.

PERIODICALS

Greenspan, Deborah, and John S. Greenspan. "HIV-related oral disease." *The Lancet* 348 (September 14, 1996):729-734.

Tobin, Marla J. "Vulvovaginal candidiasis: topical vs. oral therapy." *American Family Physician* 51 (May 15, 1995):1715-1723.

OTHER

Monistat.com: Yeast Infection Resource Center. http://www.monistat.com.

Kathleen D. Wright

Yellow dock

Description

Yellow dock (*Rumex crispus*) is a small, leafy plant that grows wild throughout the world. It belongs to the buckwheat or Polygonaceae family. It has yellowish-brown roots, which accounts for its common name. The roots are 8-12 in (20-30 cm) long, about 0.5 in (1.27 cm) thick, fleshy, and usually not forked. The stem is 1-3 ft (0.3-0.9 m) high and branched. Yellow dock is also known as curly or curled dock because of its long lance shaped leaves that are slightly ruffled along its edges. The leaves are 6-10 in (15-25 cm) long. Its leaves are used for food while both roots and leaves are used as herbal remedies. Yellow dock is closely related to rhubarb and sorrel.

In terms of chemical analysis, yellow dock contains anthraquinone glycosides, tannins, rumicin, and oxalates, including **potassium** oxalate.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Yellow dock is primarily used in the treatment of digestive problems, liver diseases, and skin disorders. It has been described as an alterative, astringent, cholagogue, hepatic, laxative, and nutritive. *(© blickwinkel / Alamy)*

KEY TERMS

Alterative—A herb that changes one's physical condition, especially a blood cleanser.

Astringent—A substance that constricts or binds skin cells.

Cholagogue—A substance that stimulates the flow of bile.

Hepatic—A herb that acts as a liver tonic.

Infusion—The most potent form of extraction of a herb into water. Infusions are steeped for a longer period of time than teas.

Oxalic acid—A white crystalline water-soluble acid, found in yellow dock, sorrel, and spinach. In its pure form it is used as a cleanser and bleaching agent.

General use

Yellow dock is primarily used in the treatment of digestive problems, liver diseases, and skin disorders. It has been described as an alterative, astringent, cholagogue, hepatic, laxative, and nutritive.

Yellow dock contains relatively small amounts of anthraquinone glycosides, which are strong laxatives in larger doses. Since yellow dock contains only small amounts of these chemicals, however, it is used as a mild laxative. Yellow dock is also used to help support and restore liver function, which is why it is called a hepatic.

Applied externally as an antiseptic and an astringent, yellow dock has been used to treat skin **cuts**, swelling, **rashes**, **boils**, **burns**, bleeding **hemorrhoids**, dog and insect **bites**, and **wounds**. An ancient British charm that was chanted when dock is applied to skin irritations caused by stinging **nettle** illustrates the use of yellow dock as a skin treatment: "Nettle out, dock in, dock remove the nettle sting."

Yellow dock is also taken internally as a treatment for such skin conditions as **psoriasis**, **eczema**, **acne**, poison ivy, and other rashes, often in combination with such other herbs as **red clover** (*Trifolium pratense*), **dandelion** root (*Taraxacum officinalis*), cleavers (*Galium aparine*), and burdock (*Arctium lappa*).

Yellow dock also has been used in the treatment of liver and gallbladder disorders. It is called a cholagogue because it is thought to stimulate the production of bile and digestive fluids.

Yellow dock is nutritious, as it contains **vitamin C**, **iron**, **calcium**, and **phosphorus**. It even contains enough tannin to use in tanning leather.

Other uses of yellow dock by traditional herbalists have included the treatment of:

- vaginitis
- fibroids
- anemia
- swollen glands

Preparations

Both the roots and leaves of yellow dock are used in remedies. Due to the mild and general nature of its actions, yellow dock is rarely used alone, but in combination with other herbal remedies. The roots are dug in late summer and autumn between the months of August and October. They are cleaned well and split lengthwise before drying. The roots are ground or

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

crushed and then are used in preparing ointments, tinctures, decoctions, or teas. The ground root is kept cool and dry but not frozen.

Tea is prepared by boiling 1-2 tsp (5-10 g) of yellow dock root in 500 mL (2 cups) water for 10 minutes. Syrup is made by boiling 0.5 lb of crushed root in a pint of syrup. Dried extracts of yellow dock are also prepared as pills or capsules, and are available commercially. These commercial preparations are often a mixture of several different types of herbs. The directions on the label of the commercial product should be followed for recommended dosages.

For external applications, both roots and leaves are used. The root may be pounded and applied as a poultice. Fresh or boiled leaves and stems are directly placed on skin irritations. An ointment is made by boiling the root in vinegar until the fiber is softened. The pulp is then mixed with a solid grease such as petroleum jelly, animal fat, or vegetable shortening.

The young leaves of yellow dock may be eaten cooked as greens, but should not be eaten raw. If the plant is too bitter, it may be parboiled, washed, added to clear water, and cooked until tender. Since the leaves contain oxalic acid (similar to spinach), they should not be eaten frequently in large amounts as the oxalic acid can prevent the absorption of calcium. The seeds of yellow dock have been ground and used as flour.

Precautions

Since no safe dosage has been established, pregnant or breastfeeding women and infants and children under the age of six should avoid the use of yellow dock. Persons with any chronic diseases of the gastrointestinal tract, such as duodenal ulcers, esophageal reflux, spastic **colitis**, diverticulosis, or **diverticulitis**, should not take yellow dock.

A person with a history of **kidney stones** should not use yellow dock, since the oxalates and tannins present in yellow dock may aggravate that condition.

When used as a laxative, yellow dock should not be used for more than a week, unless a doctor has ordered otherwise. Overuse of a laxative may lead to dependence. Any sudden changes in bowel habits or function that last longer than two weeks should be checked by a doctor before using a laxative. Children up to six years of age should not take a laxative unless prescribed by a doctor.

Side effects

The side effects, especially if larger doses of yellow dock are taken, include **diarrhea**, skin eruptions, **nausea**, and **vomiting**. Kidney damage, characterized by blood in urine, decreased urine flow, and swelling of hands and feet may also occur.

Interactions

To enhance the activity of yellow dock, use it in combination with such other herbs as red clover (*Trifolium pratense*), dandelion root (*Taraxacum officinalis*), cleavers (*Galium aparine*), and burdock (*Arctium lappa*).

Resources

BOOKS

Heatherly, Ana Nez. *Healing Plants: A Medicinal Guide to Native North American Plants and Herbs*. New York: The Lyons Press, 1998.

Judith Sims

Yellow jasmine *see* **Gelsemium**

Yerba santa

Description

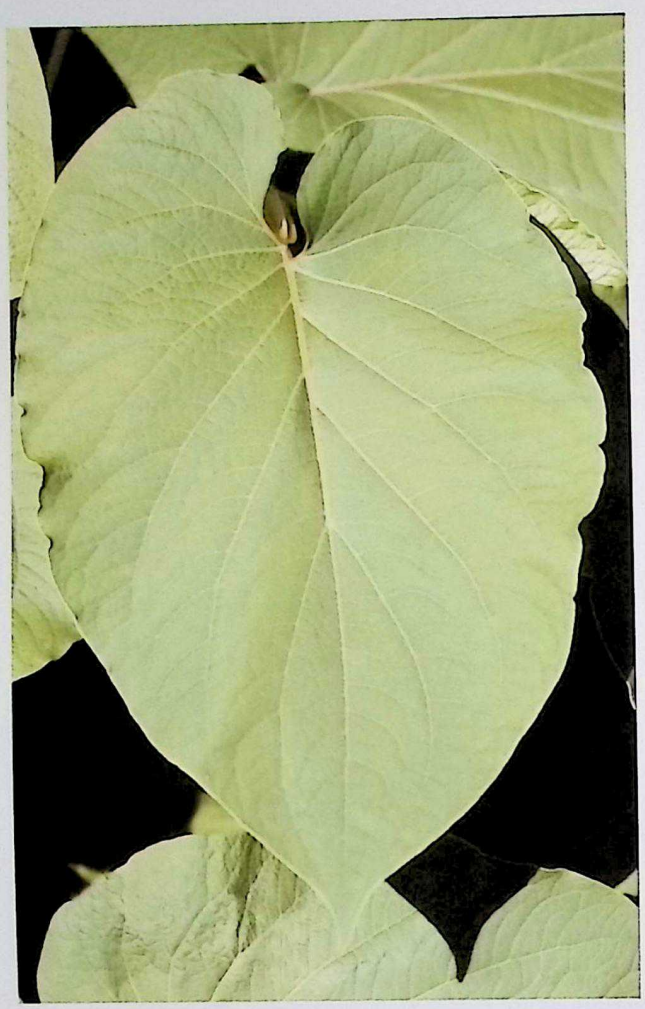
Yerba santa (*Eriodictyon glutinosum* and *Eriodictyon californicum*) is a short evergreen shrub that grows in dry, hilly areas of California and Northern Mexico. The plant, part of the Hydrophyllaceae family, grows in clusters and is approximately 3 ft (1 m) in height. The smooth stem and thick yellow leaves are covered with a resin, and the plant has blue flowers that cluster together in groups of six to 10. The leaves are 2–5 in (5–12 cm) long. The plant contains chrysocriol, eridonel, eriodictyol, formic acid, glucose, glycerides of fatty acids, homoeriodictyol, resin, tannic acids, tannins, volatile oil, and zanthoeridol. The leaves should be gathered in the spring and early summer.

General use

Yerba santa, which literally means sacred herb in Spanish, has been used for centuries for a variety of illnesses, such as bronchitis , colds, coughs, **diarrhea**, and **stomachaches**. The Spanish came to know of its medicinal value through Native Americans, who either smoked or made infusions of yerba santa. The herb, also known as bear's weed, consumptive's weed,

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri



Yerba santa has been used for centuries for a variety of illnesses, such as bronchitis, colds, coughs, diarrhea, and stomachaches. *(© bildagentur-online.com / Alamy)*

gum bush, and mountain balm, is still primarily used for respiratory congestion, either from acute **asthma**, colds, or coughs. Yerba santa has also been found effective for a number of symptoms, including gastrointestinal disorders and **fatigue**. When used externally for bruises , mosquito **bites**, or **sprains**, yerba santa can be applied as a poultice. The herb also used as a tonic to cleanse the blood, tone the nervous system, stimulates the mind, and controls the appetite. It is also believed to enhance the action of other herbs when used in combination. It has a sweet, slightly bitter taste.

Respiratory conditions

Yerba santa is best known for its use in respiratory conditions, especially when there is a lot of mucous stuck in the body. It is considered one of the best decongestants, working as an expectorant by breaking up thick mucus and facilitating its expulsion from the body. For acute colds and coughs with upper respiratory and sinus congestion, yerba santa is extremely helpful. As a muscle relaxant, yerba santa works well for asthmatics as it dilates the bronchial tubes and allows air to flow more easily into the lungs. For asthma, yerba santa is often smoked in a pipe, for instance.

KEY TERMS

Sialagogue—An agent that increases salivation.

Acute illnesses

At the onset of a cold, especially when there is a cough or bronchial irritation, yerba santa can eradicate or at least alleviate the symptoms.

Digestive aid

As a sialagogue, a substance that promotes salivation, yerba santa helps digestion. The excess saliva production helps the digestive process and can alleviate digestive problems.

Fatigue

Because yerba santa is a stimulant, it reduces fatigue and curbs the appetite.

Skin conditions

A poultice of yerba santa should be applied to **bruises**, insect bites, sprains, and **wounds**.

Preparations

For a yerba santa infusion, take 1 tbsp of the fresh or dried leaves to 1 c of boiling water and let it steep for 10 minutes. If a tincture is taken, then one dose should be from 10–30 drops, taken four times a day. If dried leaves are used, then the tincture is best with an alcohol base.

Precautions

Yerba santa should not be taken by women who are pregnant or nursing. It is also an herb that should not be used by people who are suffering from chronic gastrointestinal disorders. As a stimulant, it should also be used sparingly by those who have **sleep disorders** or bouts of **insomnia**.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Side effects

As a stimulant, yerba santa may cause sleeplessness and contribute to a lack of appetite.

Interactions

When it is taken internally, as an infusion, tincture, or in capsule form, be aware that yerba santa can affect the how iron and other minerals are absorbed into the body. Those who tend to be **iron** deficient may want to supplement their **diets** with iron while taking yerba santa. It is best to consult with a physician or other health practitioner before attempting to self-medicate.

Resources

BOOKS

Ritchason, Jack. *The Little Herb Encyclopedia*. Woodland Health Books, 1995.

Tierra, Michael. *The Way of Herbs*. Pocket Books, 1980.

OTHER

Grieve, Mrs. M. *A Modern Herbal*. http://www.botanical.com.

Herbal Dave Homepage. http://www.herbaldave.com.

InfoStructure. http://www.mind.net.

Thrive Online. http://www.thriveonline.com.

Katherine Y. Kim

Yoga

Definition

The term *yoga* comes from a Sanskrit word that means yoke or union. Traditionally, yoga is a method joining the individual self with the Divine, Universal Spirit, or Cosmic Consciousness. Physical and mental exercises are designed to help achieve this goal, also called self-transcendence or enlightenment. On the physical level, yoga postures, called *asanas*, are designed to tone, strengthen, and align the body. These postures are performed to make the spine supple and healthy and to promote blood flow to all the organs, glands, and tissues, keeping all the bodily systems healthy. On the mental level, yoga uses breathing techniques (*pranayama*) and **meditation** (*dyana*) to quiet, clarify, and discipline the mind. However, experts are quick to point out that yoga is not a religion, but a way of living with health and peace of mind as its aims.

Origins

Yoga originated in ancient India and is one of the longest surviving philosophical systems in the world. Some scholars have estimated that yoga is as old as 5,000 years; artifacts detailing yoga postures have been found in India from over 3000 B.C. Yoga masters (*yogis*) claim that it is a highly developed science of healthy living that has been tested and perfected for all these years. Yoga was first brought to America in the late 1800s when Swami Vivekananda, an Indian teacher and yogi, presented a lecture on meditation in Chicago. Yoga slowly began gaining followers, and flourished during the 1960s when there was a surge of interest in Eastern philosophy. There has since been a vast exchange of yoga knowledge in America, with many students going to India to study and many Indian experts coming here to teach, resulting in the establishment of a wide variety schools. Today, yoga is thriving, and it has become easy to find teachers and practitioners throughout America. A recent Roper poll, commissioned by *Yoga Journal*, found that 11 million Americans do yoga at least occasionally and six million perform it regularly. Yoga stretches are used by physical therapists and professional sports teams, and the benefits of yoga are being touted by movie stars and Fortune 500 executives. Many prestigious schools of medicine have studied and introduced yoga techniques as proven therapies for illness and **stress**. Some medical schools, like UCLA, even offer yoga classes as part of their physician training program.

Benefits

Yoga has been used to alleviate problems associated with high blood pressure, high **cholesterol**, migraine headaches, **asthma**, shallow breathing, backaches, **constipation**, diabetes, **menopause**, **multiple sclerosis**, **varicose veins**, and many chronic illnesses. It also has been studied and approved for its ability to promote **relaxation** and reduce stress. On the other hand, some researchers are now questioning claims that yoga is beneficial for such conditions as **carpal tunnel syndrome**.

Yoga is increasingly recommended for **dysmenorrhea**, **premenstrual syndrome**, and other disorders in premenopausal women, in Europe as well as in the United States.

Yoga can also provide the same benefits as any well-designed **exercise** program, increasing general health and stamina, reducing stress, and improving those conditions brought about by sedentary lifestyles. Yoga has the added advantage of being a low-impact

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Yoga positions

Name	Description
Abdominal massage	Kneel with arms folded. Bend torso toward ground and lower forehead to the floor. Slowly raise up, switch arms, and repeat.
Boat	Lying on back, raise head, torso, arms, and legs off the ground and stretch. Arms should be outstretched and pointing towards feet.
Bow	Lying on stomach, hold ankles from behind and slowly raise head, torso and thighs off floor.
Bridge	Lying on back with knees bent and feet flat on floor, raise pelvis off floor and arch back. Arms should be stretched out on floor with hands grasped.
C	On hands and knees, move head and buttocks as far left as possible, inhale as you return center and repeat on the right side.
Camel	While kneeling, arch back and bend head back toward feet. Hold heels with hands and exhale while in movement.
Cat	On hands and knees, arch back and exhale while in movement, rounding shoulders and back.
Child	Kneeling with arms to the side, roll torso on floor and rest forehead on the ground.
Cobra	Stretched out on floor with stomach down, place elbows parallel to shoulders and raise torso up. Arms should straighten with hands flat on floor.
Corpse	Lie on back with feet and arms outstretched. Breathe deeply.
Dog	On hands and knees, dip back and lift head and buttocks up. Exhale.
Downward-Facing Dog	On hands and knees form an inverted V by pushing pelvis up and pressing hands and heels to floor. Exhale while in movement.
Half Cobra	Stretched out on floor with stomach down, place elbows parallel to shoulders and raise torso up. Keep arms bent and only raise torso off the ground as far as the navel.
Half Locust	Lying on stomach with hands beneath the body, raise legs one at a time while tensing buttocks. Repeat with other leg.
Half Lotus	Sit with legs crossed (only one leg should be over the other) and knees touching the floor.
Half Moon	Standing with feet together, hold hands above the head with arms outstretched. Exhale and stretch to the left. Inhale and return to center. Repeat on other side.
Hand and thumb squeeze	Make a fist around thumb and squeeze. Release slowly and repeat on other hand.
Head to knee	Sitting with right leg outstretched and the left leg bent toward the body, with the left foot touching the right leg, stretch head to right knee. Repeat on pother side.
Hero	Kneel on the floor with thighs perpendicular to the floor, and touch inner knees together. Sit back and down between the feet, resting the buttocks on the floor. Rest hands on the thighs.
Knee down twist	Lying on back with arms outstretched, place right foot on left knee and swivel right knee to the left side of floor. While in movement, turn head to left side. Repeat on other side.

(Illustration by Corey Light. Cengage Learning, Gale)

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Yoga positions (CONTINUED)

Name	Description
Locust	Lying on stomach with hands lying next to the body, fingers pointing toward the toes, squeeze buttocks and lift legs up and outward. Keep legs straight and press back of the arms up, palms facing the sky.
Lotus	Sit with legs crossed and knees touching the floor, with a foot resting on each knee.
Mountain	Standing with feet together, inhale while raising arms straight above the head and clasp hands together. Exhale while lowering arms, and clasp hands in front of the heart.
Pigeon	Kneeling slide the left leg straight out from behind and inhale, stretching torso up. Release and repeat on other side.
Plow	Lying on back, inhale and raise legs over head while keeping hands flat on floor for support.
Rag Doll	While standing, exhale and bend over toward toes, cupping elbows with hands. Breathe deeply.
Seated Angle	Sitting with legs outstretched in a V shape, stretch arms to toes and head to floor.
Seated Forward Bend	Sitting with legs outstretched and feet together, stretch head to toes.
Shoulder Crunch	With back straight, slowly lift shoulder to ear and lower. Repeat on other side.
Shoulder Stand	Lying on back, lift legs up and support back with hands. Slowly angle legs over head and then extend upward.
Sphinx	Lying on stomach with elbows parallel to shoulders and palm and forearms on the ground, push torso up and look upward.
Spider	Press fingertips together and move palms in and out.
Spinal Twist	Sit with right foot crossed over left leg and right leg held with left arm. Twist while supporting body with right hand on the floor. Repeat on other side.
Standing Angle	Inhale and step into V position, stretching arms out and then down toward floor.
Standing Yoga Mudra	Standing with arms at sides, inhale and raise arms in front. Exhale and swing arms to back.
Tree	While standing, place one foot on opposite thigh and outstretch arms above the head. Hold hands above with index fingers straight and the remaining fingers clasped.
Triangle	With arms parallel to floor and legs outstretched, turn one foot out and stretch to that side, keeping arms straight, putting the hand on the side being stretched toward on the floor and the other arm straight into the air. Turn head up toward stretched arm.
Upward Dog	Lying on stomach with hands down near the chest, lift torso off the floor while raising on toes. Hands should raise, but remain palms down. Arch back slightly.
Warrior I	Raise arms over head with palms together and lunge forward with one foot, keeping thigh parallel to the ground.
Warrior II	With arms straight out and parallel to the ground and legs in V, turn one foot out and lunge to the side, keeping hips straight.
Yoga Mudra	Sitting on heels, round torso to the ground with forehead to the floor while stretching arms overhead. Inhale while in movement and exhale while lowering arms.

(Illustration by Corey Light. Cengage Learning, Gale)

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Asana—A position or stance in yoga.

Dyana—The yoga term for meditation.

Hatha yoga—Form of yoga using postures, breathing methods and meditation.

Meditation—Technique of concentration for relaxing the mind and body.

Pranayama—Yogic breathing techniques.

Yogi (feminine, yogini)—A trained yoga expert.

activity that uses only gravity as resistance, which makes it an excellent physical therapy routine; certain yoga postures can be safely used to strengthen and balance all parts of the body. A study published in late 2002 summarized recent findings about the benefits of yoga for the cardiovascular and musculoskeletal systems. The review noted that yoga is still viewed as a "trendy" form of exercise rather than one with documented medical benefits.

Meditation has been much studied and approved for its benefits in reducing stress-related conditions. The landmark book, *The Relaxation Response*, by Harvard cardiologist Herbert Benson, showed that meditation and breathing techniques for relaxation could have the opposite effect of stress, reducing blood pressure and other indicators. Since then, much research has reiterated the benefits of meditation for stress reduction and general health. Currently, the American Medical Association recommends meditation techniques as a first step before medication for borderline **hypertension** cases. Some 2002 studies indicate that yogic meditation by itself is effective in lowering serum cholesterol as well as blood pressure.

Modern psychological studies have shown that even slight facial expressions can cause changes in the involuntary nervous system; yoga utilizes the mind/body connection. That is, yoga practice contains the central ideas that physical posture and alignment can influence a person's mood and self-esteem, and also that the mind can be used to shape and heal the body. Yoga practitioners claim that the strengthening of mind/body awareness can bring eventual improvements in all facets of a person's life.

Description

Classical yoga is separated into eight limbs, each a part of the complete system for mental, physical, and spiritual well-being. Four of the limbs deal with mental and physical exercises designed to bring the mind in tune with the body. The other four deal with different stages of meditation. There are six major types of yoga, all with the same goals of health and harmony but with varying techniques: hatha, raja, karma, bhakti, jnana, and tantra yoga. **Hatha yoga** is the most commonly practiced branch of yoga in America, and it is a highly developed system of nearly 200 physical postures, movements, and breathing techniques designed to tune the body to its optimal health. The yoga philosophy believes the breath to be the most important facet of health, as the breath is the largest source of *prana*, or life force, and hatha yoga utilizes *pranayama*, which literally means the science or control of breathing. Hatha yoga was originally developed as a system to make the body strong and healthy enough to enable mental awareness and spiritual enlightenment.

There are several different schools of hatha yoga in America; the two most prevalent ones are Iyengar and ashtanga yoga. Iyengar yoga was founded by B.K.S. Iyengar, who is widely considered as one of the great living innovators of yoga. Iyengar yoga puts strict emphasis on form and alignment, and uses traditional hatha yoga techniques in new manners and sequences. Iyengar yoga can be good for physical therapy because it allows the use of props like straps and blocks to make it easier for some people to get into the yoga postures. Ashtanga yoga can be a more vigorous routine, using a flowing and dance-like sequence of hatha postures to generate body heat, which purifies the body through sweating and deep breathing.

The other types of yoga show some of the remaining ideas which permeate yoga. Raja yoga strives to bring about mental clarity and discipline through meditation, simplicity, and non-attachment to worldly things and desires. Karma yoga emphasizes charity, service to others, non-aggression and non-harming as means to awareness and peace. **Bhakti yoga** is the path of devotion and love of God, or Universal Spirit. Jnana yoga is the practice and development of knowledge and wisdom. Finally, tantra yoga is the path to self-awareness through religious rituals, including awareness of sexuality as sacred and vital.

A typical hatha yoga routine consists of a sequence of physical poses, or asanas, and the sequence is designed to work all parts of the body, with particular emphasis on making the spine supple and healthy and increasing circulation. Hatha yoga asanas utilize three basic movements: forward bends, backward bends, and twisting motions. Each asana is named for a common thing it resembles, like the sun salutation, cobra, locust, plough, bow, eagle, and tree, to name a few. Each pose has steps for entering and exiting it, and each posture

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

requires proper form and alignment. A pose is held for some time, depending on its level of difficulty and one's strength and stamina, and the practitioner is also usually aware of when to inhale and exhale at certain points in each posture, as breathing properly is another fundamental aspect of yoga. Breathing should be deep and through the nose. Mental concentration in each position is also very important, which improves awareness, poise, and posture. During a yoga routine there is often a position in which to perform meditation, if deep relaxation is one of the goals of the sequence.

Yoga routines can take anywhere from 20 minutes to two or more hours, with one hour being a good time investment to perform a sequence of postures and a meditation. Some yoga routines, depending on the teacher and school, can be as strenuous as the most difficult workout, and some routines merely stretch and align the body while the breath and heart rate are kept slow and steady. Yoga achieves its best results when it is practiced as a daily discipline, and yoga can be a life-long exercise routine, offering deeper and more challenging positions as a practitioner becomes more adept. The basic positions can increase a person's strength, flexibility, and sense of well-being almost immediately, but it can take years to perfect and deepen them, which is an appealing and stimulating aspect of yoga for many.

Yoga is usually best learned from a yoga teacher or physical therapist, but yoga is simple enough that one can learn the basics from good books on the subject, which are plentiful. Yoga classes are generally inexpensive, averaging around 10 dollars per class, and students can learn basic postures in just a few classes. Many YMCAs, colleges, and community health organizations offer beginning yoga classes as well, often for nominal fees. If yoga is part of a physical therapy program, its cost may be reimbursed by insurance.

Preparations

Yoga can be performed by those of any age and condition, although not all poses should be attempted by everyone. Yoga is also a very accessible form of exercise; all that is needed is a flat floor surface large enough to stretch out on, a mat or towel, and enough overhead space to fully raise the arms. It is a good activity for those who can not go to gyms, who do not like other forms of exercise, or have very busy schedules. Yoga should be done on an empty stomach, and teachers recommend waiting three or more hours after meals. Loose and comfortable clothing should be worn.

Precautions

People with injuries, medical conditions, or spinal problems should consult a doctor before beginning yoga. Those with medical conditions should find a yoga teacher who is familiar with their type of problem and who is willing to give them individual attention. Pregnant women can benefit from yoga, but should always be guided by an experienced teacher. Certain yoga positions should not be performed with a **fever**, or during **menstruation**.

Beginners should exercise care and concentration when performing yoga postures, and not try to stretch too much too quickly, as injury could result. Some advanced yoga postures, like the headstand and full lotus position, can be difficult and require strength, flexibility, and gradual preparation, so beginners should get the help of a teacher before attempting them.

Yoga is not a competitive sport; it does not matter how a person does in comparison with others, but how aware and disciplined one becomes with one's own body and limitations. Proper form and alignment should always be maintained during a stretch or posture, and the stretch or posture should be stopped when there is **pain**, **dizziness**, or **fatigue**. The mental component of yoga is just as important as the physical postures. Concentration and awareness of breath should not be neglected. Yoga should be done with an open, gentle, and non-critical mind; when one stretches into a yoga position, it can be thought of accepting and working on one's limits. Impatience, self-criticism, and comparing oneself to others will not help in this process of self-knowledge. While performing the yoga of breathing (pranayama) and meditation (dyana), it is best to have an experienced teacher, as these powerful techniques can cause dizziness and discomfort when done improperly.

Side effects

Some people have reported injuries by performing yoga postures without proper form or concentration, or by attempting difficult positions without working up to them gradually or having appropriate supervision. Beginners sometimes report muscle soreness and fatigue after performing yoga, but these side effects diminish with practice.

Research and general acceptance

Although yoga originated in a culture very different from modern America, it has been accepted and its practice has spread relatively quickly. Many yogis are amazed at how rapidly yoga's popularity has spread in

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

PATANJALI (2ND CENTURY B.C.)

There is little historical information available on Patanjali, who is credited with developing yoga, one of the six systems of Hindu philosophy. Several scholars suggest several persons may have developed yoga under the pseudonym of Patanjali. In any case, Patanjali existed around 150 B.C. in India. He developed yoga based on a loose set of doctrines and practices from the Upanishads, themselves a set of mystical writings. The Upanishads are part of the Aranyakas, philosophical concepts that are part of the Veda, the most ancient body of literature of Hinduism. Patanjali gave these combined philosophical and esoteric writings a common foundation in his *Yoga Sutra*, a set of 196 concise aphorisms (wise sayings) that form the principles of yoga. He also drew upon Samkhya, the oldest classic system of Hindu philosophy. Patanjali's yoga accepted Samkhya metaphysics and the concept of a supreme soul. He established an eight-stage discipline of self-control and meditation. The individual sutras (verses) lay out the entire tradition of meditation. They also describe the moral and physical disciplines needed for the soul to attain absolute freedom from the body and self.

the United States, considering the legend that it was passed down secretly by handfuls of followers for many centuries.

There can still be found some resistance to yoga, as active and busy Americans sometimes find it hard to believe that an exercise program that requires them to slow down, concentrate, and breathe deeply can be more effective than lifting weights or running. However, ongoing research in top medical schools is showing yoga's effectiveness for overall health and for specific problems, making it an increasingly acceptable health practice.

Training and certification

Many different schools of yoga have developed in America, and beginners should experiment with them to find the best-suited routine. Hatha yoga schools emphasize classical yoga postures, and raja yoga schools concentrate on mental discipline and meditation techniques. In America, there are no generally accepted standards for the certification of yoga teachers. Some schools certify teachers in a few intensive days and some require years of study before certifying teachers. Beginners should search for teachers who show respect and are careful in their teaching, and should beware of instructors who push them into poses before they are ready.

Resources

BOOKS

Ansari, Mark, and Liz Lark. *Yoga for Beginners*. New York: Harper, 1999.

Bodian, Stephan, and Georg Feuerstein. *Living Yoga*. New York: Putnam, 1993.

Carrico, Mara. *Yoga Journal's Yoga Basics*. New York: Henry Holt, 1997.

Iyengar, B.K.S. *Light on Yoga*. New York: Schocken, 1975.

Pelletier, Kenneth R., MD. *The Best Alternative Medicine*, Chapter 10, "Ayurvedic Medicine and Yoga: From Buddha to the Millennium." New York: Simon & Schuster, 2002.

PERIODICALS

Engebretson, J. "Culture and Complementary Therapies" *Complementary Therapies in Nursing and Midwifery* 8 (November 2002): 177–184.

Gerritsen, A. A., M. C. de Krom, M. A. Struijs, et al. "Conservative Treatment Options for Carpal Tunnel Syndrome: A Systematic Review of Randomized Controlled Trials." *Journal of Neurology* 249 (March 2002): 272–280.

Kronenberg, F., and A. Fugh-Berman. "Complementary and Alternative Medicine for Menopausal Symptoms: A Review of Randomized, Controlled Trials." *Annals of Internal Medicine* 137 (November 19, 2002): 805–813.

Manocha, R., G. B. Marks, P. Kenchington, et al. "Sahaja Yoga in the Management of Moderate to Severe Asthma: A Randomized Controlled Trial." *Thorax* 57 (February 2002): 110–115.

Raub, J. A. "Psychophysiologic Effects of Hatha Yoga on Musculoskeletal and Cardiopulmonary Function: A Literature Review." *Journal of Alternative and Complementary Medicine* 8 (December 2002): 797–812.

Tonini, G. "Dysmenorrhea, Endometriosis and Premenstrual Syndrome" [in Italian] *Minerva Pediatrica* 54 (December 2002): 525–538.

Vyas, R., and N. Dikshit. "Effect of Meditation on Respiratory System, Cardiovascular System and Lipid Profile." *Indian Journal of Physiology and Pharmacology* 46 (October 2002): 487–491.

Yoga International Magazine. R.R. 1 Box 407, Honesdale, PA 18431. http://www.yimag.com

Yoga Journal. P.O. Box 469088, Escondido, CA 92046. http://www.yogajournal.com

ORGANIZATIONS

American Yoga Association. *www.americanyogaassociation.org*.

International Association of Yoga Therapists (IAYT). 4150 Tivoli Ave., Los Angeles, CA 90066.

Yoga Research and Education Center (YREC). 2400A County Center Drive, Santa Rosa, CA 95403. (707) 566-0000. www.yrec.org.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

OTHER
Yoga Directory. http://www.yogadirectory.com
Yoga Finder Online. http://www.yogafinder.com

Douglas Dupler
Rebecca J. Frey, PhD

Yohimbe

Description

Yohimbe (*Corynanthe yohimbe*) is an herb derived from the bark of the yohimbe tree found primarily in the West African nations of Cameroon, Gabon, and Zaire. The major active constituent of the bark is yohimbine. In prescription doses, the active ingredient is yohimbine hydrochloride.

General use

Yohimbe has been used for centuries in African folk medicine to treat fevers, leprosy, coughs, and as a local anesthetic. But its most popular use has been as an aphrodisiac and a mild hallucinogen. It has been widely used in Europe for about 75 years to treat male erectile dysfunction, or **impotence**. The U. S. Food and Drug Administration (FDA) approved yohimbe as a treatment for impotence in the late 1980s. It is sold as an over-the-counter dietary supplement and as a prescription drug under brand names such as Yocon, Aphrodyne, Erex, Yohimex, Testomar, Yohimbe, and Yovital.

There is no clear medical research that indicates exactly how or why yohimbe works in treating impotence. It is generally believed that yohimbe dilates blood vessels and stimulates blood flow to the penis, causing an erection. It also prevents blood from flowing out of the penis during an erection. It may also act on the central nervous system, specifically the lower spinal cord area where sexual signals are transmitted. Studies show it is effective in 30-40% of men with impotence. It is primarily effective in men with impotence caused by vascular, psychogenic, or diabetic problems. It usually does not work in men whose impotence is caused by organic nerve damage. In men without erectile dysfunction, yohimbe in some cases appears to increase sexual stamina and prolong erections.

Yohimbe is also used for weight loss, although not to the extent it is used for treating impotence. Some alternative health practitioners believe it is more effective and safer than the stimulant ephedra (also known as *ma huang*) in achieving weight loss. Yohimbe is often prescribed for weight loss by natural health practitioners at Bastyr University in Kenmore, Washington "It's my number one choice for weight loss," Lise Alschuler, medical director of the school's natural health clinic, said in a January 1998 article in *Vegetarian Times*. "I prescribe it in very small doses and slowly increase intake while monitoring patients' tolerance levels." Dosing starts at 1 mg of yohimbine three times a day.

Yohimbe has been used for centuries in African folk medicine to treat fevers, leprosy, coughs, and as a local anesthetic but its most popular use has been as an aphrodisiac and a mild hallucinogen. *(© TH Foto / Alamy)*

A 1994 study by the Eastern Virginia Medical School also found yohimbine may be effective in treating **narcolepsy**. While the study involved only eight people with the sleep disorder, seven of them given yohimbine were able to stay awake for an eight-hour work day. The researchers believe yohimbine works by counteracting the brain chemistry that causes narcolepsy, and remains effective even after a few weeks of regular use.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Aphrodisiac—Any substance, aroma, or image that arouses sexual desire.

Erectile dysfunction—The inability of a male to have or maintain an erection.

Glaucoma—A disease of the eye marked by increased pressure within the eyeball that can cause damage and lead to a gradual loss of vision.

Hypertension—Abnormally high arterial blood pressure, which if left untreated can lead to hear disease and stroke.

Leprosy—A chronic disease characterized by lesions on the body, especially the face, that enlarge and spread if left untreated, leading to paralysis, muscle wasting, and deformities.

Monoamine oxidase inhibitor—A class of antidepressant drugs.

Narcolepsy—A condition characterized by brief attacks of deep sleep outside of the normal sleep cycle.

Tyramine—A compound derived from tyrosine, an amino acid that is a precursor to various alkaloids, and found in various types of food.

Preparations

The usual dosage of yohimbine extract to treat erectile dysfunction is 5.4 milligrams (mg) three times a day. It may take three to six weeks for it to take effect. In the event of side effects, dosage is usually reduced to one-half a tablet three times a day, then gradually increased to one tablet three times a day. Prescription yohimbe containing yohimbine is standardized at 5.4 mg per tablet. The retail price for a name brand yohimbe is generally $18-36 for 30 tablets. A generic prescription for yohimbine is about $6-12 for 30 tablets. Most yohimbe sold over the counter is in tablet or capsule form and contains 500-1,000 mg of yohimbe bark, and contains only a small percentage of the active ingredient yohimbine. The strength of yohimbe bark extract sold over the counter varies greatly and may not be a reliable source of yohimbine. A 1995 study by the FDA looked at 26 over-the-counter yohimbe products and did not find any that had enough yohimbine to effectively treat erectile dysfunction. Yohimbe bark extract is also sold over the counter in combination with other herbs and dietary supplements. The best way to ensure that a patient is getting enough active ingredient to treat erectile dysfunction is to ask a physician for a prescription yohimbe product.

Precautions

Since yohimbe can cause confusion, dizziness, and disorientation, it should not be taken while operating machinery, driving, or performing hazardous activities. It should not be taken by people with chronic health problems, such as heart, liver, or kidney disease, diabetes, **glaucoma**, **hypertension** (high blood pressure), or mental illness. Children, women, or men with prostate problems should not use yohimbe. Persons should consult their physician or health care practitioner before they start taking yohimbe.

Side effects

There can be several serious side effects associated with yohimbe. An allergic reaction is possible with symptoms such as difficulty breathing, throat constriction, **hives**, and swelling of the face, lips, or tongue. It can also cause an irregular or rapid heartbeat, and disorientation. Minor side effects can include **dizziness**, anxiety, shaking, headaches, skin flushing, and irritability.

Yohimbe is also reported to have produce hallucinogenic properties in some people. The effects have been compared to the drug LSD and can last from two to four hours. These effects include audio and visual hallucinations, and feelings of euphoria. They usually occur when yohimbe is taken in higher than recommended doses.

Interactions

Yohimbe should not be used by people who are taking tranquilizers, antidepressants, sedatives, antihistamines, amphetamines or other stimulants, including **caffeine**. Since yohimbe is a short-term monoamine oxidase (MAO) inhibitor, it should not be taken with hypertension medication. It should not be taken with food or drink that contains high amounts of tyramine, such as wine, beer, cheese, cured meats, dried fish, bananas, red plumbs, oranges, dried fruit, avocado, tomato, eggplant, and soy sauce. Doing so can cause a rise in blood pressure. Yohimbe should not be used with other prescription erectile dysfunction drugs, such as Viagra.

Resources

BOOKS

Foster, Steven and Varro E. Tyler. *Tyler's Honest Herbal: A Sensible Guide to the Use of Herbs and Related Remedies*. Binghamton, NY: The Haworth Press, Inc. 1999.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Miller, Lucinda G. and Wallace J. Murray (Editors). *Herbal Medicinals: A Clinician's Guide*. Binghamton, NY: The Haworth Press, Inc. 1999.

Poche, Henry Z. *Medical Biology of Yohimbine & Its Easy Use in Male Sex Erectile Dysfunction*. Washington, DC: ABBE Publishers Association of Washington, DC. 1997.

Robbers, James E. and Varro E. Tyler. *Tyler's Herbs of Choice: The Therapeutic Use of Phytomedicinals*. Binghamton, NY: The Haworth Press, Inc. 1998.

Tenny, Deanne. *Yohimbe (The Woodland Health Series.)* Pleasant Grove, UT: Woodland Publishing. 1997.

PERIODICALS

Berger, Laurie. "The Lowdown on natural Fat Fighters." *Vegetarian Times* (January 1998): 82-84.

Campbell, Adam. "Soft Science: The Exclusive World on Which Sex Supplements may Help and Which Won't." *Men's Health* (May 2002): 100.

Castleman, Michael. "Recipes for Lust." *Psychology Today* (July/August 1997): 50-58.

Millman, Christian. "Natural Disasters." *Men's Health* (April 1999): 90.

Puotinen, C. J. "Herbs for Virility: Natural Ways to Spruce Up Your Sex Appeal." *Vegetarian Times* (May 1997): 80-82.

"Yohimbe Tree Bark: Herbal Viagra Better Gotten by Rx." *Environmental Nutrition* (February 1999): 8.

ORGANIZATIONS

American Herbalist Guild. P.O. Box 70, Roosevelt, UT 84066. (435) 722-8434. http://www.healthy.net:80/pan/pa/herbalmedicine/ahg.htm.

OTHER

Natural Health Encyclopedia. "Yohimbe." Personal Health Zone. 2000. http://www.personalhealthzone.com/pg000251.html.

"Yohimbe (*Pausinystalia yohimbe*)." MotherNature.com. http://www.mothernature.com/ency/herb/yohimbe.asp.

"Yohimbine." drkoop.com. http://www.drkoop.com/hcr/drugstory/pharmacy/leaflets/english/d01386a1.asp.

Ken R. Wells
Teresa G. Odle

Yucca

Description

The yucca plant is native to the high deserts of the southwestern United States and Mexico. It is also found less commonly in parts of the eastern United States and West Indies. Extracts from the plant's root are used in alternative medicine as a soap and as an herbal dietary supplement. The yucca has at least 40 species, including *Yucca filamentosa*, the most common type, *Yucca brevifolia* (Joshua tree), *Yucca aloifolia* (Spanish bayonet), and *Yucca gloriosa* (Spanish dagger.) Two other species, *Yucca baccata* and *Yucca glauca*, are called soap plant because their roots are especially good for making soap.

Yucca plant in flower. *(© Cephas Picture Library / Alamy)*

Yucca plants are tree-like succulents of the lily family (Liliaceae) with stemless stiff, pointed leaves that end in a sharp needle. The Joshua tree, the namesake of Joshua Tree National Park near Palm Springs, California, is believed to have been named by Mormon settlers because the plant's angular branches resembled the outstretched arms of Joshua leading them out of the desert. The yucca flower is a series of white or purple blossoms on a long stalk.

General use

Native American tribes in the southwestern United States and Northern Mexico found numerous uses for the yucca, dating back hundreds of years. Several tribes, including the Western Apaches on the Fort Apache

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Reservation in Arizona, use the plant today. The most common use seems to be for hygiene. Roots of the yucca baccata are pounded to remove extracts that are made into shampoo and soap. The Apaches also use yucca leaf fibers to make dental floss and rope. Historically, Western Apaches mixed ground juniper berries with yucca fruit to make a gravy. They also made a fermented drink from **juniper** berries and yucca fruit pounded to a pulp and soaked in water. Other Native American groups used yucca soap to treat dandruff and **hair loss**.

Native Americans also used yucca plants for a variety of other non-medical purposes, including making sandals, belts, cloth, baskets, cords, and mats. Such uses can still be found today among Hopi, Papago, and Ute Indians. The Zuni used a mixture of soap made from yucca sap and ground aster to wash newborn babies to stimulate hair growth. Navajos would tie a bunch of yucca fibers together and use it as a brush for cleaning metates.

The primary medical use of yucca is to treat arthritis and joint **pain** and inflammation. Native Americans used sap from the leaves in poultices or baths to treat skin lesions, **sprains**, inflammation, and bleeding. Teas made from yucca mixed together with other herbs are still brewed by folk healers in northern New Mexico to treat **asthma** and headaches. Constituents of the yucca are used today to treat people with **osteoarthritis** and rheumatoid arthritis. The plant's medical properties are found in saponins, precursors of cortisone, which prevent the release of toxins from the intestines that restrict normal cartilage formation. Saponins are produced naturally in the body by the adrenal glands. It is believed yucca works best for arthritis when taken over an extended period of time.

Yucca extract is used to treat a variety of other conditions, including migraine headaches, **colitis**, ulcers, **wounds**, **gout**, **bursitis**, hypertension (high blood pressure), and high LDL cholesterol (also called bad **cholesterol**). Liver, kidney, and gallbladder disorders are also treated with yucca extract. More recently, researchers have found that **resveratrol**, a compound found in yucca extract as well as in red wine, inhibits the aggregation or clumping of blood platelets. This finding suggests that yucca extract may be useful in preventing **blood clots**.

A number of commercial uses for yucca extract have been found, including adding it to root beer, alcoholic beer, and cocktail mixers as a foaming agent. The bittersweet dark brown extract is also used as an additive in ice cream and other foods.

The extract of the *Yucca schidigera* (Mojave or Mohave yucca) is also used as an additive in natural pet foods. It is reported to speed up bowel elimination, reduce fecal and urine odor, and improve digestion in dogs and cats. It can also be added to pet food as a spray or drops. Several studies also show that when added to animal feed, *Yucca schidigera* extract can reduce noxious ammonia gas in the waste products of poultry, pigs, cows, and horses. A decrease in ammonia levels can increase egg production in chickens and milk production in dairy cattle.

KEY TERMS

Adrenal glands— A pair of endocrine organs near the kidneys that produce steroids such as sex hormones, hormones associated with metabolic functions, and epinephrine.

Bursitis—An inflammation of a sac between a tendon and bone, usually in the shoulder or elbow.

Cholesterol— A fatty substance manufactured in the liver and carried throughout the body in the bloodstream.

Colitis—An inflammation of the colon.

Cortisone—A drug used in the treatment of rheumatoid arthritis.

LDL cholesterol—Low density lipid cholesterol, which causes fatty buildup in blood vessels and can lead to heart disease.

Metates—Stone slabs used by Native Americans to grind corn and other grains.

Poultice—Medicinal herbs or remedies held together by a piece of cloth tied together at its corners, heated, and applied to sores or lesions to promote healing.

Saponins—A group of glucosides that occur in plants and produce a soapy lather.

Preparations

The standard dosage of concentrated yucca saponins is two to four tablets or capsules a day. Yucca concentrate is also available as a tea, with the usual dosage being 3–5 cups a day. Capsules and tablets are commonly sold in doses of 500 milligrams. A bottle of 30, 60, 90, or 100 units costs $6–10 and can usually be found in health food stores.

Precautions

Since yucca has rarely been studied in a scientific setting, it is not known whether it is safe in children, pregnant or lactating women, or people with a history

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

of severe kidney or liver diseases, heart disease, or **cancer**. It appears to be nontoxic to other mammals, including such household pets as cats and dogs.

Side effects

Saponins extracted from yucca plants are generally considered safe when used in traditional doses and forms based on several hundred years of use by Native Americans, both as food and medicine. In recent years, the only reported minor problems are rare cases of diarrhea and **nausea**. Some people who are sensitive to plant allergens may develop a mild skin rash from contact with yucca sap.

Interactions

Long-term internal use of yucca extract may interfere with the absorption of such fat-soluble vitamins as A, D, E, and K. However, no interactions between yucca and standard prescription medications have been reported.

Resources

BOOKS

Foster, Steven and Varro E. Tyler. *Tyler's Honest Herbal: A Sensible Guide to the Use of Herbs and Related Remedies.*Binghamton, NY: The Haworth Press, Inc. 1999.

Heinerman, John. *Aloe Vera, Jojoba, and Yucca.* Chicago, IL: Keats Publishing, 1990.

Kavasch, E. Barrie, and Karen Baar. *American Indian Healing Arts: Herbs, Rituals, and Remedies for Every Season of Life.* New York: Bantam Books, 1999.

Miller, Lucinda G., and Wallace J. Murray, eds. *Herbal Medicinals: A Clinician's Guide.* Binghamton, NY: The Haworth Press, Inc. 1999.

Null, Gary. *Secrets of the Sacred White Buffalo.* Paramus, NJ: Prentice Hall. 1998.

Robbers, James E. and Varro E. Tyler. *Tyler's Herbs of Choice: The Therapeutic Use of Phytomedicinals.* Binghamton, NY:The Haworth Press, Inc. 1998.

PERIODICALS

Miyakoshi, M., et al. "Antiyeast Steroidal Saponins from *Yucca Schidigera* (Mohave Yucca), a New Anti-Food-Deteriorating Agent." *Journal of Natural Products* (March 2000): 332-338.

Nyerges, Christopher. "Naturally Clean: How to Find and Use Some of Nature's Most Common Soaps." *Mother Earth News* (August-September 1997): 18-19.

Olas, B., B. Wachowicz, A. Stochmal, and W. Oleszek. "Anti-Platelet Effects of Different Phenolic Compounds from *Yucca schidigera Roezl.* Bark." *Platelets* 13 (May 2002): 167-173.

Vanderjagt, T. J., R. Ghattas, D. J. Vanderjagt, et al. "Comparison of the Total Antioxidant Content of 30 Widely Used Medicinal Plants of New Mexico." *Life Sciences* 70 (January 18, 2002): 1035-1040.

Wang, Y., et al. "Effect of Steroidal Saponin from *Yucca Schidigera* Extract on Ruminal Microbes." *Journal of Applied Microbiology* (May 2000): 887-896.

ORGANIZATIONS

American Association of Naturopathic Physicians (AANP). 3201 New Mexico Avenue, NW, Suite 350, Washington, DC 20016. (202) 895-1392. *www.naturopathic.org.*

Southwest School of Botanical Medicine. P. O. Box 4565, Bisbee, AZ 85603. (520) 432-5855. www.swsbm.com.

OTHER

"Yucca." MotherNature.com. www.mothernature.com/ency/herb/yucca.asp.

Ken R. Wells
Rebecca J. Frey, PhD

Zhi zi *see* **Gardenia**

Zinc

Description

Zinc is a mineral that is essential for a healthy immune system, production of certain hormones, wound healing, bone formation, and clear skin. It is required in very small amounts, and is thus known as a trace mineral. Despite the low requirement, zinc is found in nearly every cell of the body and is a key to the proper function of more than 300 enzymes, including superoxide dismutase. Normal growth and development cannot occur without it.

General use

The U.S. Recommended Dietary Allowance (RDA) for zinc is 5 milligrams (mg) for children under one year of age, 10 mg for children aged one to 10 years old, 15 mg for males 11 years or older, 12 mg for females 11 years or older, 15 mg for women who are pregnant, and 16-19 mg for women who are lactating.

Zinc has become a popular remedy for the **common cold**. Evidence shows that it is unlikely to prevent upper respiratory **infections**, but beginning a supplement promptly when symptoms occur can significantly shorten the duration of the illness. The only form of zinc proven effective for this purpose is the zinc gluconate or zinc acetate lozenge. Formulations of 13-23 mg or more appear to be most effective, and need to be dissolved in the mouth in order to exert antiviral properties. Swallowing or sucking on oral

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Recommended dietary allowance of zinc

Age	mg/day
Children 0-6 mos.	3
Children 7-12 mos.	3
Children 1-3 yrs.	3
Children 4-8 yrs.	5
Children 9-13 yrs.	8
Boys 14-18 yrs.	11
Girls 14-18 yrs.	9
Men ≥ 19 yrs.	11
Women ≥ 19 yrs.	8
Pregnant women	13
Breastfeeding women	14

Foods that contain zinc	mg
Oysters, 6 med.	16
Beef shank, lean, 1 oz.	3
Beef chuck, lean, 1 oz.	2.7
Chickpeas, canned, 1 cup	2.6
Yogurt, plain, low fat, 1 cup	2.2
Milk, 1 cup	1.8
Beans, kidney, California red, 1 cup	1.6
Beef tenderloin, lean, 1 oz.	1.6
Cashews, dry roasted, no salt, 1 oz.	1.6
Peas, green, frozen, 1 cup	1.6
Pecans, dry roasted, no salt, 1 oz.	1.4
Pork shoulder, lean, 1 oz.	1.4
Beef, eye of round, lean, 1 oz.	1.3
Cheese, swiss, 1 oz.	1.1
Nuts, mixed, dry roasted, no salt, 1 oz.	1.1
Almonds, dry roasted, no salt, 1 oz.	1.0
Walnuts, black, dried, 1 oz.	1.0
Cheese, cheddar, 1 oz.	0.9
Cheese, mozzarella, part skim, 1 oz.	0.9
Chicken breast, meat only, 1 oz.	0.9
Chicken leg, meat only, 1 oz.	0.9
Oatmeal, instant, low salt, 1 packet	0.8
Pork tenderloin, lean, 1 oz.	0.8
Beans, baked, canned with pork, 1 oz.	0.6
Flounder, sole, 1 oz.	0.2

mg = milligram

(Illustration by GGS Information Services. Cengage Learning, Gale)

zinc tablets will not work. The lozenges can be used every two hours for up to a week or two at most.

People who are deficient in zinc are prone to getting more frequent and longer lasting infections of various types. Zinc acts as an immune booster, in part due to stimulation of the thymus gland. This gland tends to shrink with age, and consequently produces less of the hormones that boost the production of infection-fighting white blood cells. Supplemental zinc, at one to two times RDA amounts, can reverse this tendency and improve immune function.

KEY TERMS

Acrodermatitis enteropathica—Hereditary metabolic problem characterized by dermatitis, diarrhea, and poor immune status. Oral treatment with zinc is curative.

Benign prostatic hypertrophy—Enlargement of the prostate gland, which surrounds the male urethra, causing frequent urination. This condition is very common in older men.

Hemochromatosis—A hereditary condition which results in excessive storage of iron in various tissues of the body.

Macular degeneration—Deterioration of part of the retina, causing progressive loss of vision. This is the most common cause of blindness in the elderly.

Sickle-cell anemia—A genetic malformation of red blood cells that can cause periodic crises in sufferers.

Tinnitus—Perceived ringing, buzzing, whistling, or other noise heard in one or both ears that has no external source. There are a number of conditions that may cause this.

In another immune stimulant capacity, zinc can offer some relief from chronic infections with *Candida albicans*, or yeast. Most women will experience a vaginal **yeast infection** at some time, and are particularly prone to them during the childbearing years. Some individuals appear to be more susceptible than others. One study showed yeast- fighting benefits for zinc even for those who were not deficient in the mineral to begin with. Other supplements that will complement zinc in combating yeast problems are **vitamin A**, **vitamin C**, and **vitamin E**. Another measure that can help to limit problems with *Candida* is eating yogurt, which is an excellent source of *Lactobacillus*, a friendly bacteria that competes with yeast. Limiting sweets in the diet and eating **garlic** or odor-free garlic supplements may also prove helpful.

People who are going to have surgery are well advised to make sure they are getting the RDA of zinc, vitamin A, and vitamin C in order to optimize wound healing. A deficiency of any of these nutrients can significantly lengthen the time it takes to heal. Adequate levels of these vitamins and minerals for at

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

least a few weeks before and after surgery can speed healing. The same nutrients are important to minimize the healing time of **bedsores**, **burns**, and other skin lesions.

There are two male health problems that can potentially benefit from zinc supplementation. Testosterone is one of the hormones that requires zinc for production. Men with **infertility** as a result of low testosterone levels may experience improvement from taking a zinc supplement. Another common condition that zinc can be helpful for is benign prostatic hypertrophy, a common cause of abnormally frequent urination in older men. Taking an extra 50 mg a day for three to six months offers symptomatic relief for some men.

Teenagers are often low in zinc, and also tend to experience more **acne** than the general population. The doses used in studies have been in the high range, requiring medical supervision, but increasing dietary zinc or taking a modest supplement in order to get the RDA amount is low risk and may prove helpful for those suffering from acne. Consult a knowledgeable health care provider before taking large doses of any supplement.

There is some evidence that zinc supplementation may slightly relieve the symptoms of **rheumatoid arthritis**, but the studies are not yet conclusive. It's possible that those who initially had low zinc levels benefited the most.

In 2002, new research showed certain concentrations of zinc improved the effect of a therapy called interferon for some patients with chronic **hepatitis** C. Although the trial was preliminary, it showed promise for further research into zinc's effects in enhancing interferon therapy.

Zinc is sometimes promoted as an aid for memory. This may be true to the extent that vitamin B_6 and neurotransmitters are not properly utilized without it. However, in the case of people with **Alzheimer's disease**, zinc can cause more harm than good. Some experiments indicate that zinc actually decreases intellectual function of people with this disease. Under these circumstances, it is probably best to stick to the RDA of 15 mg as a maximum daily amount of zinc.

The frequency of sickle-cell crisis in patients with sickle-cell **anemia** may be decreased by zinc supplementation. The decrease was significant in one study, although the severity of the attacks that occurred was not affected. Use of zinc supplementation or other treatment for sickle- cell anemia, a serious condition, should not be undertaken without the supervision of a health care provider.

Both the retina of the eye, and the cochlea in the inner ear contain large amounts of zinc, which they appear to need in order to function properly. Dr. George E. Shambaugh, Jr., M.D., is a professor emeritus of otolaryngology and head and neck surgery at Northwestern University Medical School in Chicago. In *Prevention's Healing with Vitamins*, he "estimates that about 25% of the people he sees with severe **tinnitus** are zinc-deficient." He adds that they sometimes have other symptoms of zinc deficiency. Large doses may be used in order to provide relief for this problem. Medical supervision and monitoring are necessary to undertake this course of treatment.

Topical zinc can be useful for some conditions, including cold sores. It is also available in a combination formula with the antibiotic erythromycin for the treatment of acne. Zinc oxide is a commonly used ingredient in the strongest sun block preparations and some creams for the treatment of **diaper rash** and superficial skin injuries. Men can use topical zinc oxide to speed the healing of **genital herpes** lesions, but it is too drying for women to use in the vaginal area.

There is still not enough information on some of the claims that are made for zinc. A few that may have merit are the prevention or slowing of **macular degeneration**, and relieving **psoriasis**. Consult a health care provider for these uses.

Deficiency

It is not uncommon to have mild to moderately low levels of zinc, although serious deficiency is rare. Symptoms can include an increased susceptibility to infection, **rashes**, **hair loss**, poor growth in children, delayed healing of **wounds**, rashes, acne, male infertility, poor appetite, decreased sense of taste and smell, and possible swelling of the mouth, tongue, and eyelids.

A more serious, chronic deficiency can cause severe growth problems, including dwarfism and poor bone maturation. The spleen and liver may become enlarged. Testicular size and function both tend to decrease. **Cataracts** may form in the eyes, the optic nerve can become swollen, and color vision is sometimes affected by a profound lack of zinc. Hearing is sometimes affected as well.

Since meats are the best sources of zinc, strict vegetarians and vegans are among the groups more likely to be deficient. The absorption of zinc is inhibited by high fiber foods, so people who have **diets** that are very high in whole grain and fiber need to take supplements separately from the fiber. Zinc is needed in larger

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

amounts for women who are pregnant or breastfeeding. Deficiency during **pregnancy** may lower fetal birthweight, as well as increase maternal risk of toxemia. A good prenatal vitamin is likely to contain an adequate amount. People over age 50 don't absorb zinc as well, nor do they generally have adequate intake, and may require a supplement. Alcoholics generally have poor nutritional status to begin with, and alcohol also depletes stored zinc.

There is an increased need for most vitamins and minerals for people who are chronically under high **stress**. Those who have had surgery, severe burns, wasting illnesses, or poor **nutrition** may require larger amounts of zinc than average.

Some diseases increase the risk of zinc deficiency. Sickle-cell anemia, diabetes, and kidney disease can all affect zinc metabolism. People with **Crohn's disease**, sprue, chronic **diarrhea**, or babies with acrodermatitis enteropathica also have an increased need for zinc. Consult a health care provider for appropriate supplementation instructions.

Preparations

Natural sources

Oysters are tremendously high in zinc. Some sources, such as whole grains, beans, and nuts, have good zinc content but the fiber in these foods prevents it from being absorbed well. Foods with better utilized zinc include beef, chicken, turkey, milk, cheese, and yogurt. Pure maple syrup also is a good source of zinc.

Supplemental sources

Zinc supplements are available as oral tablets in various forms, as well as lozenges. Zinc gluconate is the type most commonly used in lozenge form to kill upper respiratory viruses. Select brands that do not use citric acid or tartaric acid for flavoring, as these appear to impair the effectiveness. The best-absorbed oral types of zinc may include zinc citrate, zinc acetate, or zinc picolinate. Zinc sulfate is the most likely to cause stomach irritation. Topical formulations are used for acne and skin injuries. Oral zinc should not be taken with foods that will reduce its absorption, such as coffee, bran, protein, phytates, **calcium**, or **phosphorus**. Supplements should be stored in a cool, dry location, away from direct light, and out of the reach of children.

Precautions

Toxicity can occur with excessively large doses of zinc supplements, and produce symptoms, including **fever**, **cough**, abdominal **pain**, **nausea**, **vomiting**, diarrhea, drowsiness, restlessness, and gait abnormalities. If doses greater than 100 mg per day are taken chronically, it can result in anemia, immune insufficiency, heart problems, and **copper** deficiency. High doses of zinc can also cause a decrease in high density lipoprotein (HDL), or good, **cholesterol**.

People who have hemochromatosis, are allergic to zinc, or are infected with HIV should not take supplemental zinc. Ulcers in the stomach or duodenum may be aggravated by supplements as well. Those with **glaucoma** should use caution if using eye drops containing zinc. Overuse of supplemental zinc during pregnancy can increase the risk of premature birth and stillbirth, particularly if the supplement is taken in the third trimester. This increase in adverse outcomes has been documented with zinc dosages of 100 mg taken three times daily.

Side effects

Zinc may cause irritation of the stomach, and is best taken with food in order to avoid nausea. The lozenge form used to treat colds has a strong taste, and can alter the sense of taste and smell for up to a few days.

Interactions

The absorption of vitamin A is improved by zinc supplements, but they may interfere with the absorption of other minerals taken at the same time, including calcium, **magnesium**, **iron**, and copper. Supplements of calcium, magnesium, and copper should be taken at different times than the zinc. Iron should only be taken if a known deficiency exists. Thiazide and loop diuretic medications, sometimes used for people with high blood pressure, congestive heart failure, or liver disease, increase the loss of zinc. Levels are also lowered by oral contraceptives. Zinc can decrease the absorption of tetracycline and quinolone class antibiotics, antacids, soy, or **manganese**, and should not be taken at the same time of day. Drinking coffee at the same time as taking zinc can reduce the absorption by as much as half. Even moderate amounts of alcohol impair zinc metabolism and increase its excretion. Chelation with EDTA can deplete zinc, so patients undergoing chelation need to supplement with zinc, according to the instructions of the health care provider.

Resources

BOOKS

Bratman, Steven and David Kroll. *Natural Health Bible.* California: Prima Publishing, 1999.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Feinstein, Alice. *Prevention's Healing with Vitamins*. Pennsylvania: Rodale Press, 1996.
Griffith, H. Winter. *Vitamins, Herbs, Minerals & supplements: the complete guide*. Arizona: Fisher Books, 1998.
Jellin, Jeff, Forrest Batz, and Kathy Hitchens. *Pharmacist's letter/Prescriber's Letter Natural Medicines Comprehensive Database*. California: Therapeutic Research Faculty, 1999.
Pressman, Alan H. and Sheila Buff. *The Complete Idiot's Guide to Vitamins and Minerals*. New York: alpha books, 1997.

PERIODICALS

Vernarec, Emil. "Zinc May Enhance the Efficacy of Interferon." *RN*(May 2002):28.

Judith Turner
Teresa G. Odle

The Zone diet

Definition

The Zone Diet program is a food management system that claims to promote optimal metabolic efficiency in the body by balancing the hormones insulin and glucagon. Insulin is responsible for converting, in the blood, incoming nutrients into cells. Glucagon regulates glucose in the liver. The Zone's food plan consists of a dietary intake of 40% carbohydrates, 30% protein, and 30% fat.

Origins

In 1995, Dr. Barry Sears, Ph.D., a former biotechnology researcher for the Massachusetts Institute of Technology, authored *The Zone*. Since that time, the book has sold more than one million copies. One of the more popular carbohydrate-restrictive **diets**, the Zone's success has recently spawned several Zone "knock-off" diets. The Zone Diet is based on a program Dr. Sears developed almost twenty years earlier to treat **heart disease** in Type II diabetics. One of his key inspirations for developing this program was his own genetic history, which demonstrated an inclination for premature **heart attack**.

In a web interview for WebMD Health, *Spending a Week in the Zone with Barry Sears, Ph.D.*, Dr. Sears explained that he believed that the primary cause of heart disease was not high **cholesterol** but high levels of insulin; and that the Zone Diet is designed to control insulin levels and thus promote better health. Dr. Sears continues to promote his diet through speeches and his web site, http://www.drsears.com/.

Benefits

The name of Dr. Sears' diet refers to an expression used by athletes to describe a euphoric state of optimal physical and mental efficiency. At its heart, the Zone Diet strives to control two metabolic hormones, insulin and glucagons, as well as properly balance eicosanoid metabolism. Eicosanoids, found in fatty acids, are important in the regulation of inflammatory, immunological and hemostatic (arresting hemorrhage) processes. Metabolism is the chemical process in living cells that provides the body with energy and new material to repair waste. In addition to permanent weight loss, this hormonal balance is said to increase longevity and blood flow, improve the immune system, and promote a sense of general well being. Furthermore, the Zone Diet is thought to assist in the prevention of chronic ailments such as diabetes, heart disease, and high blood pressure.

Description

The diet asserts that by controlling the glucagons-insulin ratio in the body, it promotes long-term weight loss as the body burns excess fat. In addition, it is claimed that balancing levels of eicosanoids further increases mental and physical performance and reduces inflammation and hunger. This state of hormonal balance, also referred to as "the Zone," is achieved, according to the diet, by maintaining a dietary ratio of 40% carbohydrates, 30% fat, and 30% protein. It is this dietary ratio that has led people to call the Zone a "40/30/30 diet."

The Zone diet requires eating five times a day—three full meals as well as a mid-afternoon and prebedtime snack. The dieter is told that he/she should eat at least once every five hours to maintain proper insulin levels. There are two distinct methods used when preparing a Zone meal: the Eyeball Method and the Block Method. Following either method should provide a daily caloric intake of roughly 1,200 calories for women and 1,500 calories for men.

With the Eyeball Method, the dieter's hand is used to judge portion sizes. For low fat proteins (chicken and fish), the portion should be approximately the size and thickness of the dieter's palm. This equals roughly three ounces of protein for women and four ounces for men. Then carbohydrates are added to the meal. For "favorable" carbohydrates, such as most fruits and vegetables, two loose, fist-sized portions may be added. For "unfavorable" carbohydrates, such as pasta and grains,

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

KEY TERMS

Carbohydrates—Neutral compounds of carbon, hydrogen, and oxygen found in sugar, starches, and cellulose.

Eicosanoids—Local, short–lived fatty acid substances with hormone-like properties, derived from arachidonic acid, that have strong physiological effects, even in very low concentrations. They influence several vital functions, such as the regulation of inflammatory, immunological and hemostatic processes.

Glucagon—A hormone from the pancreas that is responsible for releasing glucose stored in the liver.

Insulin—The hormone responsible for conveying incoming blood nutrients into cells.

Ketogenic diet—A diet that results in energy produced through the metabolism of fatty acids, usually from stored fat. By eating a very high amount of fat (80 percent) and low amounts of carbohydrates and protein, the body burns stored fat. Close medical supervision is necessary because of serious possible side effects, including ketosis.

Ketosis—An abnormal accumulation of ketones in the body, usually found in people who have diabetes mellitus or who are fasting, pregnant, starving, or on a high fat diet. Ketosis can cause serious side effects, including dehydration, kidney stones, gall stones, inflammation of the pancreas, decreased bone density, vitamin deficiency, eye problems.

Orthostatic hypotension—A drop in systolic blood pressure, which can result in dizziness or loss of consciousness.

Triglycerides—A blood fat lipid that increases the risk for heart disease.

only one tight, fist-sized portion may be added. Finally, a "dash" of dietary fat is added, which can consist of a few nuts, olives, or guacamole.

The second, and more precise, method for the Zone diet is the Block Method. In this method, each "Zone Food Block" consists of three "mini-blocks," which each represent one portion each of low-fat protein, favorable carbohydrates, and dietary fat. These mini-blocks contain a precise measurement of these macronutrients, specifically seven grams of protein, nine grams of carbohydrates, and 1.5 grams of fat. Each of the three daily meals and snacks consists of a set number of blocks. Women should consume three blocks per meal and one block for each snack, totaling eleven blocks each day. Men should consume four blocks per meal and one block for each snack, totaling 14 blocks each day. These are considered the minimum daily nutritional requirements for an adult. Different factors, such as increased muscle mass and **pregnancy**, may increase the daily food block requirements.

The Zone diet is only one of four key elements in the entire nutritional program proposed by Dr. Sears. The other three elements are the use of monounsaturated fats, dietary supplementation of Omega-3 fish oils, and **exercise**. These other elements, it is asserted, will help control metabolic function, produce "good" eicosanoids, and lower insulin levels. These four elements combined should produce a positive hormonal balance and thus increased health and permanent weight loss.

Preparations

There are few preparations required for going on the Zone diet. However, as with going on any diet, it is wise to consult with a physician beforehand. A physical examination and blood work are suggested, particularly to determine levels of cholesterol, glucose, insulin, and triglycerides (fatty acids). Dieters should also prepare their kitchens by purchasing proper measuring tools and a food scale. In addition, they should empty their cupboards of all foods with high-density carbohydrates. Zone "quick start" kits are also available from various retailers and on-line stores.

Precautions

As every individual possesses a unique biochemistry, achieving "the Zone," the state of optimal mental and physical efficiency, can be very subjective. This subjectivity can lead to confusion and frustration as individuals attempt to find their perfect metabolic balance using the 40/30/30 diet plan. Some critics believe the Zone diet is too strict, making it too difficult to maintain over a long period of time.

Due to its high protein ration (30%), the Zone diet is not recommended for people with impaired liver or kidney function. Protein metabolizes in the liver and is then excreted by the kidneys. The added strain of a high protein diet can cause long-term damage to these organs, as well as cause **kidney stones** and bone loss. Some experts further believe that these high protein requirements also contra-indicate the Zone diet for people with or at risk of heart disease, due to the higher level of saturated fat and cholesterol in many high protein foods. Clinical studies have shown that high fat/high protein/low carbohydrate diets can also

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

increase the risk of serious diseases such as high blood pressure, **stroke**, and adult-onset diabetes.

Despite Dr. Sears' claims to the contrary, many scientific studies show that the Zone diet may actually impair physical performance rather than enhance it. **Fatigue** experienced by athletes during exercise may be due to the diet's low proportions of dietary intake of carbohydrates (as stated above) as well as inadequate caloric intake. Additionally, the suggested benefits of risk reduction and increased health may be overstated.

Side effects

Dr. Sears states there are few or no side effects associated with his diet. However, many nutritional experts disagree. The Zone diet requires an intake of carbohydrates below the minimum nutritional daily requirements (100–120 g) agreed upon by most health experts. This deficiency can lead to several health risks such as cardiac problems, ketosis, and orthostatic hypotension (temporarily lowered blood pressure, usually from standing up quickly, causing temporary blood flow reduction and lack of oxygen to the brain, then lightheadedness and sometimes loss of consciousness). Mineral and vitamin deficiencies caused by low carbohydrate consumption may increase the risk of numerous diseases. The diet's high protein intake places added stress on kidney functions, increasing the risk of **gout**, **osteoporosis**, kidney stones, and kidney damage. One researcher, Sachiko St. Jeor, and colleagues concluded that dieters following diets like the Zone are potentially at risk for vitamin and mineral deficiencies.

Research and general acceptance

Although the Zone diet is not as strongly criticized as most high protein/low carbohydrate diets, few health organizations and nutritionists endorse it. Indeed, organizations such as the American College of Sports Medicine and the American Dietetic Association have publicly disagreed with the 40/30/30 plan. Most experts note the Zone diet's lack of scientific credibility, either claiming that the majority of Dr. Sears' observations and findings are supported by poorly controlled studies, unproven theories, non-validated results, and half-truths, or that the majority of published scientific research points to the detrimental effects of the Zone rather than to its health benefits. The long-term effects of the Zone diet have not been fully researched; therefore, the diet's long-term health benefits and risks are still undefined.

Training and certification

There is no formal training or certification required for the Zone diet. As Dr. Sears stated, "All you need [to start on the diet] is one hand and one eye."

Resources

BOOKS

Sears, Barry. *The Zone*. New York: Harper-Collins, 1995.

Sears, Barry. *Mastering the Zone*. New York: Regan Books, 1997.

PERIODICALS

Cheuvront, Samuel. "The Zone Diet and Athletic Performance." *Sports Medicine*(April 2000): 289–294.

Cheuvront, Samuel. "The Zone Diet Phenomenon: A Closer Look at the Science behind the Claims." *Journal of the American College of Nutrition* (February, 2003): 9–17.

Coleman, Ellen. "The BioZone Nutrition System: A Dietary Panacea?" *International Journal of Sports Nutrition* (March, 1996): 19–21.

Jarvis, Mark, Alan Seddon, Lars McNaughton, and Dylan Thompson. "The Acute 1-Week Effects of the Zone Diet on Body Composition, Blood Lipid Levels, and Performance in Recreational Endurance Athletes." *The Journal of Strength and Conditioning Research*. (February 2002):50–57.

Kendall, Pat. "Zoning in on the Zone." *Nutrition News* (September 1997).

St. Jeor, Sachiko, Barbara Howard, Elaine Prewitt, Vicki Bovee, Terry Bazzarre, and Robert Eckel. "Dietary Protein and Weight Reduction." *Circulation*(October 2001): 1869–1874.

OTHER

Babal, Ken. "The Zone: Sound Advice or Just Another Diet?" [cited June 13, 2004]. http://www.healthwell.com/hnbreakthroughs/feb98/thezonediet.cfm.

"Introduction to the Zone." Zone Perfect [cited June 13, 2004]. http://www.zoneperfect.com.

McDougall, John. "The Great Debate: High vs. Low Protein Diets" [cited June 13, 2004]. http://www.drmcdougall.com/debate.html.

Sears, Barry. "Zone Diet." DrSears.com [cited June 13, 2004]. http://www.drsears.com.

"Spending a Week in the Zone with Barry Sears, Ph.D." WebMD Health [cited June 13, 2004]. http://my.webmd.com/content/article/1/1700_50101.

"The Zone Diet." Healthwell.com [cited June 13, 2004]. http://www.healthwell.com/healthnotes.cfm?ContentID=1069001.

"The Zone Diet." Weight-loss Institute [cited June 13, 2004]. http://www.weight-loss-institute.com/zone_diet.htm

Lee Ann Paradise

Zone therapy *see* **Reflexology**

Zoster *see* **Shingles**

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

ORGANIZATIONS

A

AIDS Treatment Data Network. The NETWORK, 611 Broadway, Suite 613, New York, NY 10012. (212) 260-8868; (800)734-7104. http://www.atdn.org/.

Academy of Dermatology. 930 N. Meacham Road, P.O. Box 4014, Schaumberg, IL 60168-4014. (708) 330-0230. http://www.aad.org/zoster.html

Academy of General Dentistry. 211 East Chicago Ave., Suite 900, Chicago, IL 60611-1999; (888) AGD-DENT http://www.agd.org.

Academy of Laser Dentistry. PO Box 8667, Coral Springs, FL 33075; (954) 346-3776; (877) 527-3776 http://www.laserdentistry.org.

Academy of Psychosomatic Medicine. 5824 N. Magnolia, Chicago, IL 60660. (773) 784-2025. http://www.amp.org

Accreditation Commission for Acupuncture and Oriental Medicine (ACAOM). Maryland Trade Center #3, 7501 Greenway Center Dr., Suite 760, Greenbelt, MD 20770; (301) 313-0855; (866) 455-7999 http://www.acaom.org

Acupressure Institute. 1533 Shattuck Ave., Berkeley, CA 94709; (800) 442-2232 www.acupressure.com

Aerobic and Fitness Association of America. 15250 Ventura Blvd., Suite 200, Sherman Oaks, CA 91403. (877) 968-2639. http://www.afaa.com

Agency for Toxic Substances and Disease. 1825 Century Blvd., Atlanta; GA 30345; (800) 232-4636 http://www.atsdr.cdc.gov/

Agoraphobics Building Independent Lives. 1418 Lorraine Ave., Richmond, VA 23227.

Agoraphobics In Motion. 605 W. 11 Mile Rd., Royal Oak, MI 48067.

Al-Anon, Alanon Family Group, Inc. P.O. Box 862, Midtown Station, New York, NY 10018-0862. (800) 356-9996. http://www.recovery.org/aa

Alcoholics Anonymous, AA World Services, Inc. PO Box 459. New York, NY 10163 (212) 870-3400 http://www.alcoholics–anonymous.org/

Alexander Graham Bell Association for the Deaf. 3417 Volta Place NW, Washington, DC 20007-2778. (202) 337-5220. http:/ http://www.agbell.org

Alexander Technique International 1692 Massachusetts Ave., 3rd Floor, Cambridge, MA 02138, (888) 668-8996, 617-497-2615 www.ati-net.com

Alliances, Inc. 2121 Eisenhower Avenue, Suite 603, Alexandria, VA 22314. (800) 463-6482. http://www.medsource.com

Aloha International/Hawaiian Huna Village. P.O. Box 426, Volcano, HI 96785. 808-985-8880. http://www.huna.org/

ALS Association. 21021 Ventura Blvd., Suite #321, Woodland Hills, CA 91364. (818) 340-7500.

Alternative Medicine Foundation, Inc., P.O. Box 60016, Potomac, MD 20859. (301) 340-1960 http://www.amfoundation.org/tcm.htm

Alzheimer's Association. 225 N. Michigan Ave., 17th Floor, Chicago, IL 60601. (800) 272-3900. http://www.alz.org.

Alzheimer's Disease Education and Referral (ADEAR) Center; The National Institute of Aging (NIA).PO Box 8250, Silver Spring, MD 20907; (800) 438-4380 http://www.alzheimers.org.

American Academy of Allergy, Asthma and Immunology. 555 E. Wells St., Suite 1100. Milwaukee, WI 53202-3823 (414) 272-6071 http://www.aaaai.org

American Academy of Audiology. 11730 Plaza America Drive, Suite 300, Reston, VA 20190. (703) 790-8466. http://www.audiology.org

American Academy of Child and Adolescent Psychiatry. 3615 Wisconsin Ave. NW. Washington, DC 20016-3007 (202) 966-7300 http://www.aacap.org

American Academy of Clinical Sexologists. 1929 18th Street NW, Suite 1166, Washington, DC 20009. (202) 462-2122.

American Academy of Clinical Toxicology. 777 East Park Dr., PO Box 8820. Harrisburg, PA 17105. (717) 558-7750. http://www.clintox.org/.

American Academy of Dermatology. PO Box 4014, Schaumburg, IL 60618-4014; (847) 240-1280; (866) 503-7546 http://www.aad.org.

American Academy of Environmental Medicine. 6505 E. Central Ave., #296, Wichita, KS 67206; (316) 684-5500; (800) 232-4636 http://www.aaemonline.org

American Academy of Family Physicians. PO Box 11210. Shawnee Mission, KS 66207 (913) 906-6000 http://www.aafp.org

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

American Academy of Medical Acupuncture (AAMA). 4929 Wilshire Blvd., Suite 428, Los Angeles, CA 90010. (323) 937-5514. http://www.medicalacupuncture.org

American Academy of Neural Therapy. 410 East Denny Way, Suite 18, Seattle, WA, 98122. (206) 749-9967. http://www.Neuraltherapy.com

American Academy of Neurology. 1080 Montreal Ave., St. Paul, MN 55116. (612) 695-1940. http://www.aan.com/public/con.html

American Academy of Ophthalmology. P.O. Box 7424, San Francisco, CA 94120-7424. (415) 561-8500. http://www.eyenet.org

American Academy of Orthopaedic Surgeons (AAOS). 6300 North River Road, Rosemont, IL 60018. (847) 823-7186 or (800) 346-AAOS. http://www.aaos.org

American Academy of Otolaryngology, Head and Neck Surgery, Inc. One Prince Street, Alexandria, VA 22314-3357. (703) 836-4444.

American Academy of Pain Management. 13947 Mono Way #A, Sonora, CA 95370. (209) 533-9744. http://www.aapainmanage.org

American Academy of Pain Medicine. 4700 W. Lake, Glenview, IL 60025. (847) 375-4731. http://www.painmed.org

American Academy of Pediatrics (AAP). 141 Northwest Point Boulevard, Elk Grove Village, IL 60007-1098. 847-434-4000. kidsdocs@aap.org http://www.aap.org

American Academy of Sleep Medicine (AASM). One Westbrook Corporate Center, Suite 920, Westchester, IL 60154. (708) 492-0930. http://www.aasmnet.org

American Apitherapy Society 500 Arthur Street, Centerport, NY 11721, (631) 470-9446, http://www.apitherapy.org

American Art Therapy Association.1202 Allanson Rd., Mundelein, IL 60060-3808. 888-290-0878 or 847-949-6064. Fax: 847-566-4580. E-mail: arttherapy@ntr.net http://www.arttherapy.org

American Association For Pediatric Ophthalmology and Strabismus. c/o Denise De Losada Wilson. P.O. Box 193832, San Francisco, CA 94119-3832. (415) 561-8505. aapos@aao.org. http://med-aapos.bu.edu.

American Association for Marriage and Family Therapy. 1100 17th Street NW, 10th Floor, Washington, DC 20036-4601. (202) 452-0109.

American Association for Therapeutic Humor. 222 S. Meramec, Suite 303. St. Louis, MO 63105. (314) 863-6232. http://www.aath.org

American Association of Acupuncture and Oriental Medicine (AAAOM) P.O. Box 162340, Sacramento, CA 95816, (916) 443-4770, (866) 455-7999, (916) 443-4766 www.aaaomonline.org

American Association of Colleges of Osteopathic Medicine. 5550 Friendship Blvd., Suite 310, Chevy Chase, MD 20815-7231. (301) 968-4100. http://www.aacom.org

American Association of Naturopathic Physicians (AANP). 4435 Wisconsin Ave. NW, Suite 403, Washington, DC 20016; (866) 538-2267 http://www.naturopathic.org

American Association of Neurological Surgeons (AANS). 5550 Meadowbrook Drive, Rolling Meadows, IL 60008. (888) 566-AANS or (847) 378-0500. Fax: (847) 378-0600. http://www.aans.org

American Association of Nutritional Consultants. 810 S. Buffalo Street, Warsaw, IN 46580. (888) 828-2262.

American Association of Orthopedic Medicine. 600 Pembrook Drive, Woodland Park, CO 80863 (866)687-1920 Fax: 719-687-5184 (800) 992-2062. http://www.aaomed.org

American Association of Pastoral Counselors. 9504–A Lee Highway, Fairfax, VA 22031-2303. (703)385–6967. http://www.aapc.org.

American Association of Poison Control Centers. 3201 New Mexico Ave., Suite 310, Washington, DC 20016; (800) 222-1222 http://www.aapcc.org

American Association of Sex Educators, Counselors & Therapists. P.O. Box 238, Mt. Vernon, IA 52314. http://www.aasect.org

American Board of Hypnotherapy. 16842 Von Karman Avenue, Suite 476, Irvine, CA 92714. http://www.hypnosis.com/

American Botanical Council. P.O. Box 144345, Austin, TX 78714-4345. (512) 926-4900. http://www.herbalgram.org

American Cancer Society (National Headquarters). 1599 Clifton Road, N.E. Atlanta, GA 30329. (800) 227-2345. http://www.cancer.org

American Chiropractic Association. 1701 Clarendon Blvd.. Arlington, VA 22209. (703) 276-8800. http://www.amerchiro.org/.

American Chronic Pain Association. PO Box 850, Rocklin, CA 95677-0850; (800) 533-3231 http://www.theacpa.org.

American College for Advancement in Medicine (ACAM). 24411 Ridge Route, Suite 115. Laguna Hills, CA 92653 (949) 309-3520 http://www.acamnet.org/site/

American College of Acupuncture and Oriental Medicine. 9100 Park West Drive, Houston, TX 77063. (800) 729-4456. http://www.acaom.edu

American College of Allergy, Asthma, and Immunology. 85 West Algonquin Road, Suite 550, Arlington Heights, IL 60005. (847) 427-1200. http://www.acaai.org

American College of Chiropractic Consultants (ACCC). 28 E. Jackson Bldg., 10th Fl., Suite 1020 Chicago, IL 60604. http://www.accc-chiro.com

American College of Gastroenterology. 4900-B South Thirty-First Street, Arlington, VA 22206–1656. (703) 820–7400. http://www.acg.cgi.gi.org/acghome/html

American College of Hyperbaric Medicine. 9875 S. Franklin Dr., Suite 300. Franklin, WI 53132. (414) 858-2240. http://www.hyperbaricmedicine.org/.

American College of Obstetricians and Gynecologists (ACOG). 409 12th Street, SW, P.O. Box 96920, Washington, DC 20090-6920. http://www.acog.org

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

American College of Occupational and Environmental Medicine (ACOEM). 1114 North Arlington Heights Road, Arlington Heights, IL 60004. (847) 818-1800. http://www.acoem.org

American College of Rheumatology. 1800 Century Place, Suite 250, Atlanta, GA 30345. (404) 633-3777. acr@rheumatology.org. http://www.rheumatology.org

American College of Sports Medicine. PO Box 1440, Indianapolis, IN 46206–1440 or 401 W. Michigan St., Indianapolis, IN 46202. (317) 637–9200. Fax: (317) 634–7817. http://www.acsm.org

American College of Traditional Chinese Medicine. 455 Arkansas Street, San Francisco, CA 94107. (415) 282-7600. http://www.actcm.edu

American Council for Headache Education. 19 Mantua Road, Mt. Royal, NJ 08061. (609) 423-0043 or (800) 255-2243. http://www.achenet.org

American Council on Exercise. 5820 Oberlin Dr., Suite 102, San Diego, CA 92121-0378. (858) 535-8227. http://www.acefitness.org

American Dance Therapy Association. (410) 997-4040. info@adta.org. http://www.adta.org

American Dental Association. 211 E. Chicago Ave. Chicago, IL 60611. (312) 440-2500. http://www.ada.org

American Dermatological Association. PO Box 551301. Davie, FL 33355 (954) 452-1113 http://www.amer-derm-assn.org

American Diabetes Association. 1701 N. Beauregard St., Alexandria, VA 22311. (512) 926-4900. (800)342-2383. http://www.diabetes.org.

American Dietetic Association (ADA). 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606-6995. (800) 877-1600. http://www.eatright.org.

American Epilepsy Society. 342 N. Main St., Rm. 301. Hartford, CT 06105-4298. (860) 586-7505. http://www.aesnet.org/.

American Foundation for AIDS Research. 120 Wall St., 13th Fl.. New York, NY 1005–3908. (212) 806-1600. http://www.amfar.org/cgi-bin/iowa/fdoc.html?record=13.

American Foundation for Urologic Disease, Inc. 1000 Corporate Boulevard, Suite 410, Linthicum, MD 21090. (800) 828-7866. (410) 689-3990. memberservices@nafc.org. http://www.afud.org

American Foundation of Traditional Chinese Medicine. 505 Beach Street, San Francisco, CA 94133. (415) 776-0502.

American Gastroenterological Association (AGA). 4930 Del Ray Avenue, Bethesda, MD 20814. (310 654-2055. http://www.gastro.org/

American Gastroenterological Association.Bethesda, MD 20814 (301) 654-2089 http://www.gastro.org

American Geriatrics Society. Empire State Building, 350 Fifth Ave., Suite 801, New York, NY 10118. (212) 308-1414. (800) 272-3900. http://www.americangeriatrics.org.

American Headache Society. 19 Mantua Road. Mount Royal, NJ 08061 (856) 423-0043 http://www.americanheadachesociety.org

American Heart Association, National Center. 7272 Greenville Avenue, Dallas, TX 75231. http://www.americanheart.org

American Heart Association. 7320 Greenville Ave., Dallas, TX 75231. (800) 242-8721. http://www.americanheart.org

American Herbal Pharmacopoeia. PO Box 66809, Scotts Valley, CA 95067; (831) 461-6318; (800) 373-7105 www.herbal-ahp.org

American Herbal Products Association. 8484 Georgia Ave., Suite 370, Silver Spring, MD 20910. (301) 588-1174. http://www.ahpa.org

American Herbalist Guild. P.O. Box 70, Roosevelt, UT 84066. (435) 722-8434. http://www.healthy.net:80/pan/pa/herbalmedicine/ahg.htm

American Holistic Medical Association. One Eagle Valley Court, Suite 201, Broadview Heights, OH 44147; (440) 838-1010; (800) 222-1222 http://www.holisticmedicine.org

American Indian Science and Engineering Society (AISES). 5661 Airport Blvd. Boulder, CO 80301-2339. (303) 939-0023. Fax: (303) 939-8150. aisehq@spot.colorado.edu. http://www.colorado.edu/aises

American Industrial Hygiene Association. 2700 Prosperity Avenue, Suite 250, Fairfax, VA 22031. (703) 849-8888. http://www.aiha.org

American Institute of Homeopathy. 801 N. Fairfax Street, Suite 306, Alexandria, VA 22314 (888) 445-9988. http://homeopathyusa.org

The American Institute of Stress. 124 Park Avenue, Yonkers, NY 10703 (914) 963-1200. Fax: (914) 965-6267. http://www.stress.org.

American Institute of Vedic Studies. P.O. Box 8357, Santa Fe, NM 87504. (505) 983-9385. http://www.vedanet.com/

American Liver Foundation. 75 Maiden Lane, Suite 603, New York, NY 10038-4810; (800) GO-LIVER (465-4837) http://www.liverfoundation.org

American Lung Association. 1740 Broadway, New York, NY 10019-4374. (800) 586-4872. http://www.lungusa.org

American Macular Degeneration Foundation. P.O. Box 515, Northampton, MA 01061-0515. 888-MACULAR. 413-268-7660. amdf@macular.org. http://www.macular.org

American Massage Therapy Association. 820 Davis St., Suite 100, Evanston, IL 60201-4444. 847-864-0123. http://www.amtamassage.org

American Medical Association. 515 N. State Street, Chicago, IL 60612. (312) 464-5000. http://www.ama-assn.org

American Menopause Foundation, Inc. Empire State Bldg., 350 Fifth Ave., Ste. 2822. New York, NY 10118. (212) 714- 2398. http://www.americanmenopause.org.

American Music Therapy Association, Inc. 8455 Colesville Road, Suite 1000 Silver Spring, ML 20910. (301) 589-3300. http://www.musictherapy.org

American Natural Hygiene Society. P.O. Box 30630, Tampa, FL 33630. (813) 855-6607. anhs@anhs.org. http://www.anhs.org/index.html

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

American Naturopathic Medical Association (ANMA). PO Box 96273. Las Vegas, NV 89193 (702) 897-7053 www.anma.com

American Obesity Association (AOA). 1250 24th Street NW, Suite 300, Washington, DC 20037. (202) 776-7711 or (800) 98-OBESE. http://www.obesity.org

American Optometric Association. 2420 North Lindburgh Boulevard, St. Louis, MO 63141. (800) 365-2219. http://www.aoanet.org/

American Organization for the Bodywork Therapies of Asia (AOBTA). Laurel Oak Corporate Center, Suite 408, 1010 Haddenfield-Berlin Rd., Voorhees, NJ 08043; (856) 782-1616; (866) 455-7999 http://www.aobta.org/

American Osteopathic Association. 142 E. Ontario Chicago, IL 6061. (800) 621-1773. info@aoa-net.org. http://www.aoa-net.org

American Pain Society. 4700 W. Lake Ave.. Glenview, IL 60025. (847) 375-4715. http://www.ampainsoc.org.

American Parkinson Disease Association. 1250 Hylan Boulevard, Suite 4B, Staten Island, NY 10305-1946. (800) 223-2732. http://www.apdaparkinson.com/

American Physical Therapy Association (APTA). 1111 North Fairfax Street, Alexandria, VA 22314. (703)684-APTA or (800) 999-2782. http://www.apta.org

American Podiatric Medical Association. 9312 Old Georgetown Rd, Bethesda, MD 20814–1698. (301) 571-9200. http://www.apma.org

American Polarity Therapy Association. PO Box 19858, Boulder, CO 80308; (303) 545-2080; (800) 227-2345 http://www.polaritytherapy.org.

American Prostate Society. PO. Box 870, Hanover, MD 21076. (410) 850-0818. (888) 445-9988. http://www.americanprostatesociety.com.

American Psychiatric Association (APA). 1400 K Street, NW, Washington, DC 20005. (888) 357-7924. http://www.psych.org

American Psychological Association (APA). Office of Public Affairs. 750 First St. NE, Washington, DC 20002-4242. (202) 336-5700. http://www.apa.org/

American Psychosomatic Society. 6728 Old McLean Village Drive, McLean, VA 22101. (703) 556-9222. http://www.psychosomatic.org

American Psychotherapy & Medical Hypnosis Association. 210 S. Sierra, Reno, NV 89501. http://members.xoom.com/Hypnosis/.

American Red Cross. P.O. Box 37243, Washington, D.C. 20013. http://www.redcross.org

American Rose Society. P. O. Box 30000, Shreveport, LA 71130. (318) 938-5402. http://www.ars.org

American Skin Association. 346 Park Ave. South, 4th floor, New York, NY 10010. (800) 499-SKIN. http://www.americanskin.org/frameset.htm.

American Sleep Apnea Association. Wake-Up Call: The Wellness Letter for Snoring and Apnea. 1424 K Street NW, Suite 302, Washington, DC 20005. (202) 293-3650. http://www.sleepapnea.org

American Social Health Association. PO Box 13827. Research Triangle Park, NC 27709 (919) 361-8400 http://www.ashastd.org

American Society for Bariatric Surgery. 7328 West University Avenue, Suite F, Gainesville, FL 32607. (352) 331-4900. http://www.asbs.org

American Society for Clinical Nutrition. 9650 Rockville Pike, Bethesda, MD 20814. (301) 530-7110. http://www.faseb.org/ascn

American Society for Reproductive Medicine. 1209 Montgomery Highway, Birmingham, AL 35216-2809. (205) 978-5000. (866) 455-7999 http://www.asrm.com.

American Society for the Alexander Technique P.O. Box 60008, Florence, MA 01062, (413) 584-2359, (800) 473-0620, 413-584-3097 www.alexandertech.org

American Society of Bariatric Physicians. 5453 East Evans Place, Denver, CO 80222-5234. (303) 770-2526. http://www.asbp.org

American Society of Clinical Hypnosis. 200 E. Devon Avenue, Des Plaines, IL 60018.

American Society of Exercise Physiologists. Department of Exercise Physiology, The College of St. Scholastica, 1200 Kenwood Ave., Duluth, MN 55811. (218) 723-6297. http://www.css.edu/asep

American Society of Hematology (ASH). 1900 M Street, NW, Suite 200, Washington, DC 20036. (202) 776-0544. http://www.hematology.org

American Thyroid Association. 6066 Leesburg Pike, Suite 550. Falls Church, VA 22041 (703) 998-8890 http://www.thyroid.org

American Tinnitus Association. P.O. Box 5, Portland, Oregon 97207-0005. (800) 634-8978 or (503) 248-9985. http://www.ata.org

American Urologic Association. 1000 Corporate Blvd., Suite 410, Linthicum, MD 21090; (410) 859-7335; (866) 746-4282 http://www.auanet.org.

American Vegan Society (AVS). 56 Dinshah Lane, PO Box 369, Malaga, NJ 08328. (856) 694-2887. (800) 877-1600. http://www.americanvegan.org/index.htm.

American Veterinary Medical Association (AVMA). 1931 North Meacham Road, Suite 100, Schaumburg, IL 60173-4360. http://www.avma.org

American Yoga Association (AYA) P.O. Box 19986,. Sarasota, FL 34276. (941) 927-4977. Fax: (941) 921-9844. http://www.americanyogaassociation.org

Ann Wigmore Foundation. PO Box 399. San Fidel, NM 87049-0399. (505) 552-0595. http://www.wigmore.org.

Anthroposophic Press (Steiner Books) P.O. Box 749. Great Barrington, MA 01230 (413) 528-8233. www.steinerbooks.org

Anxiety Disorders Association of America. 11900 Parklawn Dr., Ste. 100, Rockville, MD 20852. (301) 231-9350.

Arthritis Foundation. 1330 W. Peachtree St. Atlanta, GA 30309. http://www.arthritis.org

Association for Applied Psychophysiology and Biofeedback (AAPB). 10200 W. 44th Avenue, Suite 304. Wheat Ridge, CO 80033. (303) 422-8436. http://www.aapb.org

Association for Holotropic Breathwork International. PO Box 400267. Cambridge, MA 02140. (617) 674-2474. http://www.breathwork.com.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Association for Past Life Research and Therapies, Inc., P.O. Box 20151 Riverside, CA 92516. http://www.pastlife healing.com/

Association for Psychosomatic Medicine. 4560 Delafield Ave., Bronx, NY 10471-3905. http://www.theamp.org

Association for Repetitive Motion Syndromes. PO Box 514. Santa Rosa, CA 95402. (707) 571-0397. http:// www.certifiedpst.com/arms/.

Association for Research and Enlightenment, Inc. 215 67th St., Virginia Beach, VA 23451. (757) 428-3588 or (800) 333-4499. are@edgarcayce.org. http://www.are-cayce. com/index.htm

Association of Gastrointestinal Motility Disorders. 12 Roberts Dr.. Bedford, MA 01730. (781) 275-1300. http://www.agmd-gimotility.org.

Association of Labor Assistants and Childbirth Educators (ALACE) (formerly Informed Birth & Parenting). PO. 390436, Cambridge, MA 02139; (888) 222-5223 http:// www.alace.org/.

Association of Oncology Social Work. 1211 Locust Street, Philadelphia, PA 19107. (215) 599-6093. http:// www.aosw.org

Association of Reflexologists. 5 Fore Street, Taunton Somerset, TA1 1HX. http://www.aor.org.uk.

Association of Women's Health, Obstetric, and Neonatal Nurses. 2000 L St. NW, Suite 740, Washington, DC 20036. (202) 261-2400. Toll free in Canada (800) 245-0231. http://www.awhonn.org.

Asthma and Allergy Foundation of America. 1125 Fifteenth St. NW, Suite 502. , Washington, DC 20005. (605) 780-0546. 800-7ASTHMA. http://www.aafa.org.

Aston Training Center. PO Box 3568. Incline Village, NV 89450. (775) 831-8228. http:// www.astonenterprises.com.

Atkins Nutritionals. 1050 Seventeenth St., Suite 100, Denver, CO 80265; (800) 6-ATKINS http://www.atkins.com

Attention Deficit Disorder Association. 15000 Commerce Parkway, Suite C. Mount Laurel, NJ 08054 (856) 439-9099 www.aad.org

Australian Association of Professional Hypnotherapists and NLP Practitioners, Inc. PO BOX 1526, Southport, Gold Coast, Queensland 4215, Australia. http:// www.members.tripod.com/~aaphan/index.html

Australian Homeopathic Association. 6 Cavan Ave., Renown Park, VA 5008, ; (61) 8-8346-3961. (888) 445-9988. http://www.homeopathyoz.org.

Australian Traditional Medicine Society. PO Box 1027, Meadowbank, VA NSW 2114; 61 2 9809 6800; (888) 445-9988 http://www.atms.com.au.

Ayurvedic and Naturopathic Medical Clinic. 2115 112th Ave NE, Bellevue, WA 98004. (425) 453-8022. http:// www.ayurvedicscience.com/

B

Barbara Brennan School of Healing. P.O. Box 2005. East Hampton, NY 11937. (516) 329-0951. Fax: (516) 324-9745. e-mail: bbshoffice@barbarabrennan.com.

Bastyr University. 14500 Juanita Dr. NE, Seattle, WA 98103. (206) 834-4100. http://www.bastyr.edu/

Benson-Henry Institute for Mind Body Medicine. 824 Boylston Street. . Chestnut Hill, MA 02467. (617) 732-9130. http://www.mbmi.org/home.

Better Hearing Institute. 515 King Street, Suite 420, Alexandria, VA 22314. (703) 684-3391.

Bonnie Prudden Myotherapy. P.O. Box 65240. Tucson, AZ 85728. (800)221-4634. http://www.bonnieprudden.com

Breema Center. 6076 Claremont Ave.. Oakland, CA 94618. (510) 428-0937. http://www.breema.com.

British Association for Cancer Research. Institute of Cancer Research, McElwain Laboratories, Cotswold Road, Sutton , GA SM2 5NG ; (44) 020-8722-4208. (800)227-2345. http://www.bacr.org.uk.

British Institute of Homeopathy Canada. 1445 St. Joseph Blvd., Gloucester, ON K1C 7K9 Canada. (613) 830–4759. http://www.homeopathy.com.

British Massage Therapy Council. 17 Rymers Lane, Oxford OX4 3JU. 01865-774123. http://www.bmtc.co.uk

British Society of Dowsers. Sycamore Cottage, Tamley Lane, Hastingleigh, Ashford, Kent TN26 5HW, United Kingdom.

Buddhist Association of the United States (BAUS). 1384 Broadway, 19th Floor, New York, NY 10018. (212) 398-8886. http://www.baus.org

C

California Association of Acupuncture and Oriental Medicine http://www.CAAOM.ORG/medicine/ overview.htm

California Colon Hygienist Society. 333 Miller Ave., Suite 1, Mill Valley, CA 94941. (415) 383-7224.

Cambridge Institute for Better Vision. 65 Wenham Rd., Topsfield, MA 01983.

Canadian Association of Naturopathic Doctors. 1255 Sheppard Ave. East, Toronto, VA M2K 1E3; 61 2 9809 6800; (800) 551-4381 http://www.cand.ca.

Canadian Cancer Society. 10 Alcorn Ave., Suite 200, Canada., VA M4V 3B1 ; (416) 961-7223. (800) 877-1600. http://www.cancer.ca.

Canadian Celiac Association. 5170 Dixie Rd., Suite 204, Mississauga, L4W 1E3 (800) 363-7296. http:// www.celiac.ca.

Canadian Coordinating Office for Health Technology Assessment. 600-865 Carling Ave.. Ottawa, DC K1S5S8 (613) 226-2553. http://www.ccohta.ca/pubs/ english/sleep/treatment.

Canadian Dental Association. 1815 Alta Vista Dr.. Canada., ON K1G 3Y6, (613) 523-1770. http://www.cda-adc.ca.

Canadian Naturopathic Association/Association canadienne de naturopathie. 1255 Sheppard Avenue East at Leslie, North York, ON M2K 1E2. (800) 551-4381 or (416) 496-8633. http://www.naturopathicassoc.ca

Canadian Neuro-Optic Research Institute. P.O. Box 29053. 4324 Dewdney Ave. Regina, Saskatchewan S4T 7X3.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Canada. (306) 359-7694. Fax: (306) 525-2659. cnricon tacts@cnri.edu. http://www.cnri.edu/

Canadian Pain Society. 701 Rossland Road East, Suite 373, Whitby, IL L1N 9K3; (905) 668-9545; (800) 533-3231 http://www.canadianpainsociety.ca.

Canadian Taijiquan Federation. P.O. Box 421, Milton, Ontario L9T 4Z1. http://www.canadiantaijiquan federation.ca

Canadian Urological Association. 1155 University, Suite 1155, Montreal, MD H3B 3A7; (514) 395-0376. (888) 445-9988. http://www.cua.org.

Cancer Prevention Coalition. c/o University of Illinois at Chicago School of Public Health, MC 922, 2121 West Taylor Street,. Chicago, IL 60612 (312) 996-2297. http:\\www.preventcancer.com.

Cancer Research Institute (National Headquarters). 681 Fifth Avenue, New York, NY 10022. (800) 992-2623. http://www.cancerresearch.org

Celiac Disease Foundation. 13251 Ventura Blvd., Suite 1, Studio City, CA 91604-1838. (818) 990-2354. (800) 363-7296. http://www.celiac.org.

Celiac Sprue Association. P.O. Box 3170. Omaha, NE 68131-0700. (877) 272-4272 www.csaceliacs.org

Center for Biologics Evaluation and Research (CBER), U. S. Food and Drug Administration (FDA). 1401 Rockville Pike, Rockville, MD 20852-1448. (800) 835-4709 or (301) 827-1800. http://www.fda.gov/cber

Center for Cell and Gene Therapy. Baylor College of Medicine. One Baylor Place N1002. Houston, TX 77030 (713) 798-1246 http://www.bcm.edu/genetherapy.

Center for Complementary and Alternative Medicine Research in Asthma, Allergy, and Immunology. University of California at Davis. 3150B Meyer Hall., Davis, CA 95616. (916) 752-6575. 800-7ASTHMA. http://www-camra.ucdavis.edu.

Center for Food Safety and Applied Nutrition, U.S Department of Health and Human Services. 5100 Paint Branch Parkway, College Park, MD 20740 (888) SAFEFOOD. http://www.cfsan.fda.gov

Center for Journal Therapy. 12477 W. Cedar Drive, #102. Lakewood, CO 80228. http://www.journaltherapy.com

Center for Mind-Body Medicine. 5225 Connecticut Ave, NW, Suite 414 Washington, DC 20015. (202) 966-7338. http://www.cmbm.org/

Center for Mindfulness in Medicine, Health Care and Society. Stress Reduction Clinic. University of Massachusetts Memorial Health Care. 55 Lake Avenue North, Worcester, MA 01655. (508) 856-2656. Fax (508) 856-1977. jon.kabat-zinn@banyan@ummed.edu http:// www.umassmed.edu/cfm

Center for Occupational and Environmental Medicine. 7510 Northforest Dr., North Charleston, SC 29420. (843) 572-1600. http:\\ http://www.coem.com

Center for Science in the Public Interest. 1875 Connecticut Ave. NW, Suite 300. . Washington, DC 20009. (202) 332-9110. http://www.cspinet.org.

Centers for Disease Control and Prevention (CDC). 1600 Clifton Road, Atlanta, GA 30333. (404) 639-3311. http://www.cdc.gov

Centre for Economic Botany, Royal Botanic Gardens, Kew; Richmond, Surrey; TW9 3AE, United Kingdom. Fax: +44 (0)20 8332 5768. http://www.rbgkew.org.uk

Centre for International Ethnomedicinal Education and Research (CIEER). P.O. Box 60016. Potomac, MD 20859 (301) 340-1960 http://www.cieer.org

Chinese Association of Urine Therapy. 72 Wu Kon Lio Road, Wuku Industrial Park, Taipei Hsien, Taiwan, Republic of China. 886-2-22988446. http://www.everli fepharm.com/urine/

Chronic Fatigue and Immune Dysfunction Syndrome Association of America (CFIDS). PO Box 220398, Chapel Hill, NC 20222-0398 http://www.cfids.org.

Chuang Yen Monastery. 2020, Route 301, Carmel, NY 10512. (845) 225-1819 or (845) 228-4288.

Church of Christ, Scientist. http://www.Christian Science.org

Civil Aerospace Medical Institute. P. O. Box 20582, Oklahoma City, OK 73125. (202) 366-4000. http:// www.cami.jccbi.gov

Clinic: University of Maryland Medical Center. 22 S. Greene Street (N5W40), Baltimore, MD 21201. (410) 328-6749; (800) 492-5538 www.celiaccenter.org/

College of Syntomic Optometry. (717) 387-0900. http:// www.syntonicphototherapy.com

Colon Cancer Alliance. 5411 North University Dr., Suite 202, Coral Gables, FL 33067. (877) 422-2030. (800)227-2345. http://www.ccalliance.org.

Cosmetic Ingredient Review (CIR). 1101 17th Street NW, Suite 310, Washington, DC 20036. (202) 331-0651. Fax: (202) 331-0088. http://www.cir-safety.org

Council for Homeopathic Certification. PMB 187, 16915 SE 272nd St., Suite 100, Covington, WA 98042. (866) 242-3399. (888) 445-9988. http://www.homeopathic directory.com.

Crohn's & Colitis Foundation of America. 386 Park Ave. S., 17th Floor, New York, NY 10016-8804; (800) 932-2423 http://www.ccfa.org/

Cultural Survival. 96 Mount Auburn St. Cambridge, MA 02138. (617) 441-5400. Fax (617) 441-5417. csinc@cs. org. http://www.cs.org

Cymatherapy International.(866) 909-0099 http://cyma therapy.com

D

DHA/EPA Omega-3 Institute. 150 Research Lane, Rm. 100, University of Guelph Research Park, Guelph, DC N1G 4T2; (866) 538-2267 http://www.dhaomega3.org/

Delta Society. http://www.deltasociety.org/

Depression and Bipolar Support Alliance. 730 N. Franklin St., Suite 501. Chicago, IL 60610. (312) 642-0049. http://www.ndmda.org/.

Dieticians of Canada. 480 University Ave., Suite 604, Canada., VA M5G 1V2 ; (416) 596-0857. (800) 877-1600. http://www.dieticians.ca.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Dieticians of Canada. 480 University Ave., Suite 604, Toronto, VA M5G 1V2; (416) 596-0857; (888) 445-9988 http://www.dieticians.ca

Digestive Disease National Coalition (DDNC). 711 Second Street NE, Suite 200, Washington, DC 20002. (202) 544-7497. http://www.ddnc.org

Digestive Health Initiative. 7910 Woodmont Avenue, #914, Bethesda, MD 20814. (800) 668–5237. http://www.gastro.org./dhi.html

Division of Aging and Seniors, Health Canada. 200 Eglantine Driveway, Ottawa, NY K1A 1B4 ; (613) 952-7606. (800) 272-3900. http://www.publichealth.gc.ca.

Dr. Edward Bach Centre. Mount Vernon, Bakers Lane, Brightwell-cum-Sotwell, VA OX10 0PZ ; (44) 01491-834678. (888) 445-9988. http://www.bachcentre.com.

E

Eating Disorders Awareness and Prevention. 603 Stewart St., Suite 803, Seattle, WA 98101. (800) 931-2237. http://www.edap.org

Endocrine Society. 8401 Connecticut Ave., Suite 900. Chevy Chase, MD 20815 (301) 941-0200 http://www.endo-society.org/

Endometriosis Association, International Headquarters. 8585 North Seventy-Sixth Place. Milwaukee, WI 53223 (414) 355-2200 http://EndometriosisAssn.org

Environmental Health Center, a Division of the National Safety Council. 1025 Connecticut Avenue, NW, Suite 1200, Washington, DC 20036. (202) 293-2270. http://www.nsc.org

Environmental Protection Agency. Ten regional offices with region-specific addresses and phone numbers. http://www.epa.gov

Epilepsy Foundation. 8301 Professional Place, Landover, MD 20785. (860) 586-7505. (800) 332-1000. http://www.epilepsyfoundation.org/.

European Institute of Women's Health. 33 Pearse St., Dublin, VA 2; 353-1-671-5691; (888) 445-9988 http://www.eurohealth.ie.

F

FDA Center for Food Safety and Applied Nutrition (FDA/CFSAN). http://www.fda.gov/medwatch/safety/2002/kava.htm.

Fasting Center International. 32 West Anapurna St., #360, Santa Barbara, CA 93101. http://www.fasting.com

Federation of Feminist Women's Health Centers. 14220 Interurban Ave South #140. Seattle, WA 98168 (212) 714- 2398. http://www.fwhc.org/menopause.

Feldenkrais Guild of North America. 3611 S.W. Hood Avenue, Suite 100, Portland, OR 97201. (800) 775-2118 or (503) 221-6612. Fax: (503) 221-6616. http://www.feldenkrais.com

Feminist Women's Health Center. 106 East E St.. Yakima, WA 98901. (509) 575-6473 x112. http://www.fwhc.org.

Florida Institute of Psychophysical Integration: Quantum Balance. 5837 Mariner Drive. Tampa, FL 33609-3411. (813) 186-2273. Fax: (813) 287-2870. Dr.Joy@JohnsonMail.com.

Flower Essence Society. PO Box 459, Nevada City, CA 95959 (44) 01491-834678. (800) 736-9222. http://www.flowersociety.org.

Food and Agricultural Organization of the United Nations. 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606-6995. (301) 340-1960. (800) 877-1600. http://www. fao.org.

Food and Drug Administration (FDA). 5600 Fishers Lane, Rockville, MD 20857. (888) 463-6332. http://www.fda.gov

Food and Nutrition Information Center, National Agricultural Library, United States Department of Agriculture. 10301 Baltimore Ave., Room 105, Beltsville, MD 20705; (301) 504-5414; (800) 877-1600 http:fnic.nal.usda.gov

Foundation Fighting Blindness. Executive Plaza I, Suite 800, 11350 McCormick Rd., Hunt Valley, MD 21031-1014. (888) 394-3937. http://www.blindness.org

Foundation for Homeopathic Education and Research. 21 Kittredge St., Berkeley, CA 94704. (510) 649-8930.

Freedom From Fear. 308 Seaview Ave., Staten Island, NY 10305. (718) 351-1717. http://www.freedomfromfear.com

G

Gastro-Intestinal Research Foundation. 70 East Lake Street, Suite 1015. Chicago, IL 60601 5907 (312) 332-1350 http://www.girf.org

Gay Men's Health Crisis. 119 W. 24th St. New York, NY 10011-0022 (212) 367-1000 http://www.gmhc.org/donate.html.

Geomancy, the Feng Shui Education Association. 2939 Ulloa Street, San Francisco, CA 94116. (415) 753-6408. http://www.geofengshui.com

Gerson Institute. 1572 Second Avenue, San Diego, CA 92101. (425) 967-0737. (800) 838-2256. http://www.gerson.org.

Glaucoma Foundation. 80 Maiden Lane, Suite 1206. New York, NY 10038 (212) 285-0080 http://www.glaucomafoundation.org

Global Alliance Against Chronic Respiratory Diseases (GARD), World Health Organization, Department of Chronic Diseases and Health Promotion. 20, Avenue Appia, Geneva, GA CH-1211 27; (404) 498-1515; (800) 311-3435 http://www.who.int/respiratory/gard/en/.

Gluten Intolerance Group. 31214 124th Avenue SE. Auburn, WA 98092-3667. (253) 883-6655 www.gluten.net

Gluten-Free Living. 31214 124th Avenue SE. Auburn, WA 98092-3667. (253) 883-6655 www.glutenfreeliving.com

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Grand Forks Human Nutrition Research Center. 2420 Second Ave. N.. Grand Forks, ND 58202 (317) 637-9200 http://www.gfhnrc.ars.usda.gov

Guild for Structural Integration. 209 Canyon Blvd. P.O. Box 1868. Boulder, CO 80306-1868. (303) 449-5903. (800) 530-8875. http://www.rolfguild.org.

H

Hawaiian Lomilomi Association. PO Box 2356 , Kealakekua, HI 96750-2356. http://www.hawaiilomilomi.com.

Healing Light Center Church. 261 E. Alegria Ave. #12. Sierra Madre, CA 91024. (626) 306-2170. Fax: (626) 355-0996.

Health and Rejuvenation Research Center A division of the Association for Research and Enlightenment, Inc. 215 67th Street Virginia Beach, VA 23451-2061. (757) 428-3588 ext. 7340. hrrc@are-cayce.com.

Heart Association of Australia. 80 William St., Level 3, Sydney, VA NSW 2011, ; (11) 61-2-300-36-2787. (800) 242-8721. http://www.heartfoundation.org.au

Heart and Stroke Foundation of Canada. 222 Queen St., Suite 1402, Ottawa, VA K1P 5V9 ; (613) 569-4361. (800) 242-8721. http://www.heartandstroke.ca

Hellerwork. 406 Berry St. Mt. Shasta, CA 96067. (530) 926-2500. http://www.hellerwork.com

Hepatitis Foundation International. 504 Blick Dr., Silver Spring, MD 20904; (800) 891-0707 http://www.hepfi.org/

Herb Research Foundation. 1007 Pearl St., Suite 200, Boulder, CO 80302. (303) 449-2265. http://www.herbs.org

Herbal Advisor. http://www.AllHerb.com

Holistic Dental Association. PO Box 151444. San Diego, CA 92175. (619) 923-3120. http://www.holisticdental.org.

Homeopathic Medical Council of Canada. 3910 Bathurst St., Suite 202, Toronto, CA M3H 3N8, ; (416) 638-4622. (800) 736-9222. http://www.hmcc.ca.

Huna Research, Inc. 1760 Anna Street. Cape Girardeau, MO 63701-4504. (573) 334-3478. http://www.angelfire.com/mo/huna/

Hypoglycemia Support Foundation. PO Box 451778, Sunrise, FL 33345 http://www.hypoglycemia.org/

I

ITL Cancer Clinic (Bahamas) Ltd. P.O. Box F-42689, Freeport, Grand Bahama, Bahamas. (877) 290-2607. (242)352-7455. http://www.immunemedicine.com/

Indigenous Traditional Healing Council. P. O. Box 646, Tempe, AZ 85280. (602) 209-4759. http://www.azitlan.org/sweatlodge/council/htm.

Insight Meditation Society. 1230 Pleasant, St. Barre, MA 01005. (978) 355-4378. FAX: (978) 355-6398. http://www.dharma.org

Institut Pasteur. 25-28, rue du Dr. Roux, 75015 Paris, France. +33 (0) 1 45 68 80 00. http://www.pasteur.fr/haut_ext.html

Institute for Frontier Science. 6114 LaSalle Ave. Oakland, CA 94611. (510) 531-5767. E-mail: brubik@compuserve.com. http://www.healthy.net/frontierscience/

Institute for Traditional Medicine. 2017 SE Hawthorne Blvd., Portland, OR 97214. (503) 233-4907. http://www.itmonline.org.

Institute of Medicine of the National Academies. 500 Fifth St. NW. Washington, DC 20001. (202) 234-2352. http://www.iom.edu.

The Interactive Guide to Learning Disabilities for Parents, Teachers, and Children. http://www.ldonline.org

International Academy of Biological Dentistry and Medicine. 17222 Red Oak Dr., Ste. 101. Houston, TX 77090. (281) 651-1745. http://www.iabdm.org.

International Alliance of Healthcare Educators (IAHE). 11211 Prosperity Farms Road, D-325. Palm Beach Gardens, FL 34410. (561) 622-4334 www.iahe.com.

International Aromatherapy and Herb Association. 3541 West Acapulco Lane. Phoenix, AZ 85053-4625. (602) 938-4439. http://www.aztec.asu.edu./iaha/

International Association of Crystal Healing Therapists. P.O. Box 344, Manchester, M60 2EZ, United Kingdom. Telephone: (UK) 01200-426061. Fax: (UK) 01200-444776. info@iacht.co.uk. http://www. iacht.co.uk/

International Association of Enterstomal Therapy, 27241 La Paz Road, Suite 121, Laguna Niguel, CA 92656

International Association of Infant Massage. P.O. Box 1045. Oak View, CA 93022.

International Association of Reiki Professionals. P.O. Box 481, Winchester, MA 01890. http://www.iarp.org

International Association of Rubenfeld Synergists (INARS). 7 Kendall Rd., Kendall Park, NJ 08824. (877) RSM-2468. http://www.rubenfeldsynergy.com.

International Association of Yoga Therapists (IAYT). 4150 Tivoli Ave., Los Angeles, CA 90066. http://www.yogasite.com/yoga-orgs.html

International Carotenoid Society. 10301 Baltimore Ave., Room 105. Beltsville, MD 20705 (301) 504-5414 http://www.carotenoidsociety.org

International Center for Health & Humor. 2930 Hidden Valley Road, Edmond, OK 73013. (405) 341-8115. http://www.humorandhealth.com.

International Center for Infertility Information Dissemination. PO Box 6836 , Arlington, VA 22206. (703) 379.9178. (866) 455-7999 http://www.asrm.org.

International Childbirth Education Association (ICEA). PO Box 20048, Minneapolis, MN 55420; (952) 854-8660; (888) 222-5223 http://www.icea.org.

International College of Applied Kinesiology 6405 Metcalf Ave., Suite 503, Shawnee Mission, KS 66202, 913-_384-5336, http://www.icakusa.com and http://www.icak.com

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

International Council for Medical and Clinical Therapists. 7361 McWhorter Place, Suite 300, Annandale, VA 22003-5469. http://www.ultradepth.com/ICMCT.htm

International Food Information Council. 1100 Connecticut Avenue, NW, Suite 430, Washington, DC, 20036. (202) 296-6540. http://www.ific.org

International Foundation for Homeopathy. P. O. Box 7, Edmonds, WA 98020. (206) 776-4147.

International Institute of Infant Massage. 605 Bledsoe Rd.NW. Albuquerque, NM 87107. (505) 341-9381. Fax: (505) 341-9386. http://www.infantmassage.com.

International Institute of Islamic Medicine & The Islamic Medical Association of North America. PO Box 160. Brandon, FL 33509. (813) 661-6161. http://www.iiim.org.

International Institute of Reflexology. 5650 First Avenue North, PO Box 12642. St. Petersburg, FL 33733-2642. (727) 343-4811. http://www.reflexology-usa.net/.

International Iridology Research Association. PO Box 1442. Solano Beach, CA 92075-2208. (888) 682-2208. IIRA Office@aol.com. http://www.iridologyassn.org/

International Medical and Dental Hypnotherapy Association. 4110 Edgeland, Suite 800, Royal Oak, MI 48073-2285. http://www.infinityinst.com

International Society for Traumatic Stress Studies, 60 Revere Dr., Ste. 500, Northbrook, IL 60062. (847) 480-9028. http://www.istss.org

International Society for the Study of Subtle Energies and Energy Medicine (ISSSEEM). 356 Goldco Circle. Golden, CO 80401. (303) 278-2228. http://www.vitalenergy.com/ISSSEEM

International Tremor Foundation. 7046 West 105th Street, Overland Park, KS 66212. (913) 341-3880.

International Trepanation Advocacy Group (ITAG), Inc. P. O. Box 65, Wernersville, PA 19565. (610) 693-6869. Fax: (610) 693-3261. http://www.trepan.com

Intestinal Health Institute. 4427 East Fifth St., Tucson, AZ 85711. (520) 325-9686. info@sheilas.com. http://www.sheilas.com

Iodine Network. 180 Elgin St., Suite 1000. Ottawa, K2P 2K3 +1 (613) 782-6812 http://www.iodinenetwork.net/

Irritable Bowel Syndrome Association. 1440 Whalley Ave., Suite 145, New Haven, CT M3H 3N8,; (416) 638-4622. (888) 445-9988. http://www.ibsassociation.org.

J

Japan Society for Oriental Medicine. Kokusai-Hamamatsucho Bldg. 6F, 1-9-18 Kaigan, Minato-ku, Tokyo 105-0022, Japan. office@jsom.or.jp. http://www.jsom.or.jp/html/en/index.htm

Jin Shin Do Foundation for Bodymind Acupressure. PO Box 416, Idyllwild, CA 92549; (951) 659-5707; (877) 905-2700 http://www.jinshindo.org/

Juvenile Diabetes Research Foundation International. 120 Wall Street, New York, NY 10005-4001; (425) 967-0737; (800) 533-2873 http://www.jdrf.org.

K

KidsHealth/Nemours Foundation. 4600 Touchton Road East, Building 200, Suite 500, Jacksonville, FL 32246. http://www.kidshealth.org

Kneipp Corporation of America. 105-107 Stonehurst Court. Northvale, NJ 07647. (201) 750-0600 or (800) 937-4372. http://www.kniepp.com

Kristin Brooks Hope Center. 615 Seventh St. NE, Washington, DC 20002; (202) 536-3200; (800) 442-4673 http:www//hopeline.com.

Kushi Institute. PO Box 7, Becket, MA 01223; (413) 623-5741; (800) 227-2345 http://www.macrobiotics.org.

L

LaStone Therapy. 2919 E. Broadway Blvd., Suite 224. Tucson, AZ 85716. (520) 319-6414. http://www.lastonetherapy.com

Labyrinth Enterprises. 128 Slocum Avenue, St. Louis, MO 63119. (800) 873-9873 or (314) 968-5557. Fax: (314) 968-5539. http://www.labyrinth-enterprises.com

Labyrinth Society (TLS). P. O. Box 144, New Canaan, CT 06840. (877) 446-4520. http://www.labyrinthsociety.org

LaLeche League. 1400 N. Meacham Rd., Schaumburg, IL 60173-4048. (847) 519-7730. http://www.lalecheleague.org

Learning Disabilities Association of America (LDA). 4156 Library Road, Pittsburgh, PA 15234–1349. (412) 341–1515. http://www.ldanatl.org

Leukemia and Lymphoma Society. 600 Third Avenue, New York, NY 10016. (800) 955-4572. http://www.leukemia.org

Lighthouse. 111 East Fifty-ninth St., New York, NY 10022. (314) 991-4100. (800) 334-5497. http://www.lighthouse.org.

Linus Pauling Institute. Oregon State University 571 Weniger Hall, Corvalis, OR 97331-6512; (541) 737-5075; (800) 227-2345 http://lpi.oregonstate.edu/.

LungCancer.org: A Program of Cancer Care. 275 Seventh Avenue, New York, NY 10001. (212) 712-8400 ; (800) 813-4673. http://www.lungcancer.org.

Lupus Foundation of America, Inc. 1300 Piccard Dr., Suite 200, Rockville, MD 20850. (800) 558-0121. http://www.lupus.org

Lyme Disease Foundation, Inc. One Financial Plaza, Hartford, CT 06103. (800) 886-LYME. http://www.lyme.org

Lyme Disease Network of NJ. 43 Winton R., East Brunswick, NJ 08816. (404) 639-3311; (800) 886-LYME http://www.lymenet.org

Lymphedema and Wound Care Clinic of Austin. 5750 Balcones Dr., Ste. 110, Austin, TX 78731. (512) 453-1930. http://www.lymphedema.com

Lymphoma Research Foundation of America, Inc. 8800 Venice Boulevard, Suite 207, Los Angeles, CA 90034. (310) 204-7040. http://www.lymphoma.org

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

M

Macular Degeneration Foundation. P.O. Box 531313, Henderson, NV 89053. 888-633-3937. http://www.eyesight.org

Macular Degeneration Partnership. 8733 Beverly Boulevard, Suite 201, Los Angeles, CA 90048-1844. 888-430-9898. 310-423-6455. http://www.amd.org

March of Dimes Resource Center. 1275 Mamaroneck Avenue, White Plains, NY 10605. (888) 663-4637. http://www.modimes.org

Mayo Clinic. 200 1st St. S.W., Rochester, Minnesota 55905 (507) 284-2511 http://www.mayoclinic.com

McDougall Wellness Center. P.O. Box 14039. Santa Rosa, CA 95402. (707) 576-1654. http://www.crmc dougall.com

Memorial Sloan-Kettering Cancer Center. 1275 York Ave. 68th St., New York, NY 10021. (212) 639-2000. http://www.mskcc.org

Meningitis Foundation of America. 7155 Shadeland Station, Suite 190, Indianapolis, IN 46256-3922. (800) 668-1129. http://www.musa.org/welcome.htm

Mental Health America. 2000 N. Beauregard St., 6th Floor, Alexandria, VA 22311; (703) 684-7722; (800) 969-6642 http://www.nmha.org

Meridian Institute 1853 Old Donation Parkway, Suite 1 Virginia Beach, VA 23454. (757) 496-6009. http://www.meridianinstitute.com

Metabolic Technologies, Inc. 2711 S. Loop Dr., Suite 4400, Ames, Iowa 50010-8656. www.http://hmb.org

Michael J. Fox Foundation for Parkinson's Research. Grand Central Station, PO Box 4777, New York, NY 10163. (800) 708-7644. http://www.michaeljfox.org.

Milne Institute Inc. P.O. Box 2716, Monterey, CA 93942-2716. (831) 649-1825. Fax: (831) 649-1826. http://www.milneinstitute.com

Mind-Body Medical Institute. Beth Israel Deaconess Medical Center. One Deaconess Road, Boston, MA 02215. (617) 632-9525. http://www.mbmi.org

Mozart Center (Tomatis method). P.O. Box 76, Jenner, CA 95450. (707) 632-6976. http://www.mozartcenter.com

Multiple Sclerosis Association of America (MSAA). 706 Haddonfield Road. Cherry Hill, NJ 08002-2652. (800) LEARN-MS(532-7667) Fax: (609) 661-9797. http://www.msaa.com

Multiple Sclerosis Foundation, Inc. (MSF). 6350 North Andrews Avenue. Fort Lauderdale, FL 33309. (800) 441-7055 Fax: (954) 938-8708.

Muscular Dystrophy Association. 3300 East Sunrise Drive, Tucson, AZ 85718. (520) 529–2000 or (800) 572–1717. http://www.mdausa.org.

Mushroom Council. 11875 Dublin Boulevard, Suite D-262, Dublin, CA 94568. (925) 556-5970. http://www.mushroomcouncil.com

Myopia International Research Foundation. 1265 Broadway, Room 608, New York, NY 10001. (212) 684-2777.

N

Narcolepsy Network. 10921 Reed Hartman Highway, Cincinnati, OH, 45242. (513) 891-3522. http://www.websciences.org/narnet/

National Aeronautics and Space Administration, Office of Biological and Physical Research. http://www.spaceresearch.nasa.gov

National Alliance for Research on Schizophrenia and Depression (NARSAD). 60 Cutter Mill Rd., Suite 404, Great Neck, NY, 11021. (703) 684-7722; (800) 829-8289 http://www.narsad.org

National Alliance for the Mentally Ill (NAMI). 200 North Glebe Road, Suite 1015, Arlington, VA 22203-3754. (202) 336-5700; (800) 950-6264. http://www.nami.org

National Alliance on Mental Illness (NAMI). Colonial Place Three, 2107 Wilson Blvd., Suite 300, Arlington, VA 22201-3042; (703) 524-7600; (800) 829-8289 http://www.nami.org

National Anxiety Foundation. 3135 Custer Dr., Lexington, KY 40517. (606) 272-7166. http://www.lexington-online.com/naf.html

National Association for Continence. 2650 East Main Street, Spartanburg, SC 29307. (800) 252-3337. http://www.nafc.org

National Association for Parents of the Visually Impaired, Inc. P.O. Box 317, Watertown, MA 02471. (800) 562-6265. Fax: (617) 972-7444. http://www.spedex.com/napvi

National Association of Anorexia Nervosa and Associated Disorders (ANAD) P.O. Box 7, Highland Park, IL 60035; (847) 831-3438; (800) 374-2721 http://www.anad.org

National Association of Certified Thermographers. 4248 Park Glen Rd., Minneapolis, MN 55407. (866) 417-3949. http://www.mynact.org

National Association of Cognitive-Behavioral Therapists. PO Box 2195, Weirton, WV 26062. (800) 853-1135 http://www.nacbt.org/

National Association of Holistic Aromatherapy. 836 Hanley Industrial Court, St. Louis, MO 63144. (888) ASK-NAHA. http://www.naha.org

National Association of Jewish Chaplains. 901 Route 10, Whippany, NJ 07981-1156. (973) 736-9193. http://www.najc.org

National Association of the Deaf. 814 Thayer Ave., Silver Spring, MD 20910-4500. (301) 587-1788. http://www.nad.org

National Board for Hypnotherapy and Hypnotic Anaesthesiology. 7841 West Ludlow Drive, Suite A, Peoria, AZ 85381. http://www.nbha-medicine.com/index.html

National Cancer Institute (NCI). NCI Public Inquiries Office, Suite 3036-A, 6116 Executive Boulevard, MSC8322, Bethesda, MD, 20892.(800) 4-CANCER or (800) 332-8615 (TTY). http://www.nci.nih.gov

National Center for Environmental Health, Centers for Disease Control and Prevention. 1600 Clifton Rd., Atlanta, GA 30333; (800) 311-3435 http://www.cdc.gov/nceh/

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

National Center for Homeopathy. 801 N. Fairfax St., Suite 306, Alexandria, VA 22314. (703) 548-7790. http://www.homeopathic.org

National Center for Learning Disabilities (NCLD). 381 Park Avenue South, Suite 1401, New York, NY 10016. (410) 296-0232. http://www.ncld.org

National Center for the Preservation of Medicinal Herbs. 3350 Beech Grove Road, Rutland, Ohio 45775. (740)742- 4401.

National Certification Commisision for Acupuncture and Oriental Medicine (NCCAOM) 76 South Laura St., Suite 1290, Jacksonville, FL 32202; (904) 598-1005 http://www.nccaom.org/

National CFIDS Foundation. 103 Aletha Rd. Needham, MA 02192. (781) 449-3535 http://www.ncf-net.org

National Cholesterol Education Program. NHLBI Information Center, PO Box 30105. Bethesda, MD 20824-0105 (301) 592-8573 http://www.nhlbi.nih.gov

National Chronic Fatigue Syndrome and Fibromyalgia Association. PO Box 18426. Kansas City, MO 64133 (913) 321-2278 http://www.ncfsfa.org/

National Council of Strength & Fitness. P.O. Box 557486, Miami, FL 33255. (800) 772-6273. http://www.ncsf.org

National Depressive and Manic-Depressive Association (NDMDA). 730 N. Franklin St., Suite 501, Chicago, IL 60610. (800) 826-3632. http://www.ndmda.org

National Diabetes Information Clearinghouse. 1 Information Way, Bethesda, MD 20892-3560; (425) 967-0737; (800) 860-8747 http://diabetes.niddk.nih.gov.

National Digestive Diseases Information Clearinghouse (NDDIC). 2 Information Way, Bethesda, MD 20892-3570; (425) 967-0737; (800) 891-5389 http://digestive.niddk.nih.gov

National Eating Disorders Association. 603 Stewart Street, Suite 803, Seattle, WA 98101. (800)931-2237. http://www.nationaleatingdisorders.org

National Eating Disorders Organization (NEDO). 6655 South Yale Ave., Tulsa, OK 74136. (918) 481-4044.

National Emphysema Foundation. 128 East Ave., Norwalk, CT 06851; (203) 866-5000; (800) 548-8252 http://www.emphysemafoundation.org

National Eye Institute. 31 Center Dr., MSC 2510. Bethesda, MD 20892-2510. (301) 496-5248 http://www.nei.nih.gov

National Fibromyalgia Association. 2121 S. Towne Centre Place, Suite 300, Anaheim, CA 92806. (714) 921-0150. http://www.fmaware.org.

National Guild of Hypnotists. PO Box 308, Merrimack, NH. http://www.ngh.net

National Headache Foundation. 820 N. Orleans, Suite 217, Chicago, IL 60610; (888) 653-5552 http://www.headaches.org

National Heartburn Alliance. 303 East Wacker Drive, Suite 440, Chicago, IL 60601. (877) 471-2081.nhbainformation@heartburnalliance.org. http://www.heartburnalliance.org/

National Heart, Lung, and Blood Institute Information Center. PO Box 30105, Bethesda, MD 20824-0105; (301) 592 8573; (800) 242-8721 http://www.nhlbi.nih.gov/

National Hepatitis C Coalition. PO Box 5058, Hemet, CA 92544; (951) 766-8238; (800) 891-0707 http://national-hepatitis-c.org/

National Information Center for Children and Youth with Disabilities. PO Box 1492, Washington, DC 20013-1492; (800) 695-0285 http://www.nichcy.org/

National Institute for Occupational Safety and Health, US Department of Health and Human Services. 4676 Columbia Parkway (Mail Drop R2), Cincinnati, OH 45226. http://www.cdc.gov/niosh/homepage.html

National Institute of Aging, Alzheimer's Education and Referral Center. PO Box 8250, Silver Spring, MD 20907; (800) 438-4380 http://www.nia.nih.gov/alzheimers

National Institute of Allergy and Infectious Diseases (NIAID). NIAID Office of Communications and Government Relations. 6610 Rockledge Drive, MSC 6612, Bethesda, MD 20892-6612. (866) 284-4107; (888) CDC-FACTS (888-232-3228). http://www.niaid.nih.gov

National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), National Institutes of Health. 1 AMS Circle, Bethesda, MD 20892-3675; (301) 495-4484; (877) 226-4267 http://www.niams.nih.gov

National Institute of Ayurvedic Medicine (Brewster). 584 Milltown Road, Brewster, NY 10509. (845) 278-8700. http://www.niam.com

National Institute of Ayurvedic Medicine (Manhattan). 375 Fifth Ave., 5th Floor, New York, NY 10016; (212) 685-8600 http://niam.com/

National Institute of Dental and Craniofacial Research (NIDCR), National Institutes of Health. 1815 Alta Vista Dr.. Bethesda, MD 20892-2190. (301) 496-4261. http://www.nidr.nih.gov.

National Institute of Diabetes and Digestive and Kidney Diseases. Office of Communications and Public Liaison, Building 31, Room 9A06, 31 Center Dr., MSC 2560. Bethesda, MD 20892-2560. (301) 496-3583 http://www.niddk.nih.gov/

National Institute of Mental Health (NIMH) Science Writing, Press, and Dissemination Branch. 6001 Executive Boulevard, Room 8184, MSC 9663, Bethesda, MD 20892-9663. (301) 443-4513. (866) 615-6464. http://www.nimh.nih.gov.

National Institute of Neurological Disorders and Stroke. NIH Neurological Institute. PO Box 5801, Bethesda, MD 20824; (301) 496-5751; (800) 352-9424 http://www.ninds.nih.gov

National Institute on Aging. Building 31, Room 5C27, 31 Center Drive, MSC 2292, Bethesda, MD 20892. (301) 496-1752. http://www.nia.nih.gov

National Institute on Deafness and Other Communication Disorders (NIDCD), National Institutes of Health. 31 Center Drive, MSC 2320. Bethesda, MD 20892-2320. (301) 496-7243. Fax: (301) 402-0018. http://www.nidcd.nih.gov

National Institutes of Health, Office of Research on Women's Health. 6707 Democracy Blvd, Suite 400, Bethesda,

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

MD 20892-5484. (301)402-1770 Fax: (301)402-1798. http://orwh.od.nih.gov

National Institutes of Health. National Institute of Diabetes, Digestive, and Kidney Diseases. Building 31, Room 9A06, 31 Center Drive, MSC 2560, Bethesda, MD 20892-2560; (301) 496-3583; (800) 860-8747 http://www2.niddk.nih.gov.

National Institutes of Mental Health (NIMH). Information Resources and Inquires Branch. 5600 Fishers Lane, Rm.7C-02, MSC 8030, Bethesda, MD20892. (301) 443-4513. http://www.nimh.nih.gov

National Kidney Foundation, Inc. 30 East 33rd Street, New York, NY 10016. (800)622-9010. http://www.kidney.org

National Kidney and Urologic Diseases Information Clearinghouse. 3 Information Way, Bethesda, MD 20892-3580; 800 891-5390 http://kidney.niddk.nih.gov/

National Lead Information Center, National Safety Council. 1121 Spring Lake Dr., Itasca, IL 60143-3201; (630) 285-1121; (800) 311-3435 http://www.nsc.org/issues/lead/

National Lymphedema Network. Latham Square, 1611 Telegraph Avenue, Suite 1111, Oakland, CA 94612–2138. (800) 541–3259. http://www.lymphnet.org

National Mental Health Association. 2001 N. Beauregard St., 12th floor, Alexandria, VA 22311. (800) 969-NMHA. http://www.nmha.org

National Multiple Sclerosis Society (NMSS). 733 3rd Avenue. New York, NY 10017-3288. (800) 344-4867 or (212) 986-3240. http://www.nmss.org.

National Organic Program. USDA-AMS-TM-NOP, ROOM 4008 s. Bldg, Ag Stop 0268, 1400 Independence Avenue, S.W., Room 1180. Washington, DC 20250. (202)720-3252. http://www.ams.usda.gov/nop

National Organization of Rare Disorders. 55 Kenosia Avenue PO Box 1968 Danbury, CT 06813-1968. (800) 999-6673. orphan@rarediseases.org. http://www.rarediseases.org

National Oriental Medicine Accreditation Agency (NOMAA). 3445 Pacific Coast Highway, Suite 300, Torrance, CA 90505. (213) 820-2045. http://www.nomaaa.org

National Osteoporosis Foundation. 1232 22nd Street N.W., Washington, DC 20037-1292. (202) 223-2226. http://www.nof.org

National Pancreas Foundation. 363 Boylston St., 4th Floor, Boston, MA 02116. (866) 726-2737; (800) 891-5390. http://www.pancreasfoundation.org.

National Parkinson Foundation. 1501 NW Ninth Avenue, Miami, FL 33136. (800) 327-4545. http://www.parkinson.org

National Pediculosis Association (NPA), Inc. 50 Kearney Road, Needham, MA 02494. (781) 449-NITS. npa@headlice.org. http://www.headlice.org

National Pressure Ulcer Advisory Panel, SUNY at Buffalo, Beck Hall, 3435 Main Street, Buffalo, NY 14214. http://www.npuap.org

National Psoriasis Foundation. 6600 SW Ninty-second Ave., Suite 300, Portland, OR 97223-7195. (800)723-9166. http://www.psoriasis.org.

National Reye's Syndrome Foundation. P.O. Box 829, Bryan, OH 43506. (800) 233-7393. http://www.reyessyndrome.org

National Rosacea Society. 800 S. Northwest Highway, Suite 200, Barrington, IL 60010. (888) 662-5874. http://www.rosacea.org

National Scoliosis Foundation. 5 Cabot Place Stoughton, MA 02072. (800) 673-6922. NSF@scoliosis.org. http://www.scoliosis.org

National Sleep Foundation. 1522 K St. NW, Suite 500, Washington, DC 20005. (202) 347-3471. http://www.sleepfoundation.org.

National Stroke Association. 9707 E. Easter Lane, Centennial, CO 80112. (800)STROKES. http://www.stroke.org

National Toxicology Program (NTP) Liaison and Scientific Review Office. P. O. Box 12233, MD A3-01, Research Triangle Park, NC 27709. (919) 541-0530. http://ntp-server.niehs.nih.gov.

National Vaginitis Association. 117 South Cook Street, Suite 315, Barrington, IL 60010. (800) 909-8745. VagAssoc@aol.com. http://www.vaginalinfection.com

National Women's Health Information Center. 8550 Arlington Blvd., Suite 300, Fairfax, VA 22031. (800) 994-9662. http://www.4woman.gov

National Women's Health Network. 514 10th Street NW, Suite 400, Washington, DC 20004. (202) 628-7814. http://www.nwhn.org.

Natural Woman Foundation. 8539 Sunset Blvd, No. 135, Los Angeles, CA 90069. (888) 489-6626. Chriscoprd@aol.com. http://www.naturalwoman.org

Naturopathic Physicians Licensing Examination Board (NPLEX). P. O. Box 69657, Portland, OR 97201. (503) 250-9141. http://www.nabne.org/html/index2.html

Nelson Bach USA, Ltd. 100 Research Drive, Wilmington, MA 01887. (800) 319-9151 or (978) 988-3833. Fax: (978) 988-0233. http://www.nelsonbach.com/usa.html

New York Botanical Garden. Bronx River Parkway at Fordham Road, Bronx, NY 10458. (718) 817-8700. http://www.nybg.org

New York Ginseng Association. P.O. Box 127, Roxbury, NY 12474. (607) 326-3005.

North American Association for the Study of Obesity. 8630 Fenton St., Suite 412, Silver Spring, MD, 20910. (301) 563-6526. http://www.naaso.org.

North American Menopause Society. P.O. Box 94527, Cleveland, OH 44101. (440) 442-7550. info@menopause.org. http://www.menopause.org

North American Riding for the Handicapped Association (NARHA). P. O. Box 33150, Denver, CO 80233. (303) 452-1212 or (800) 369-RIDE. http://www.narha.org

North American Vegetarian Society. PO Box 72, Dolgeville, NY 13329. (518) 568-7970. http://www.navs-online.org/.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Novato Institute for Research & Training. 1516 W. Grant Avenue, Suite 212, Novato, California 94945. 415-897-0336. http://www.somatics.com/

Nurse Healers Professional Associates International (NHPAI), the Official Organization of Therapeutic Touch. 3760 S. Highland Drive, Salt Lake City, UT 84106. (801) 273-3399. nhpai@therapeutic-touch.org. http://www.therapeutic-touch.org.

O

Occupational Safety & Health Administration 200 Constitution Avenue, N.W., Washington, D.C. 20210 http://www.osha.gov/

Office of Dietary Supplements (ODS), National Institutes of Health. 6100 Executive Boulevard, Room 3B01, MSC 7517, Bethesda, MD 20892. (301) 435-2920. http://www.ods.od.nih.gov

Office of Women's Health. U.S. Department of Health and Human Services. 200 Independence Ave. SW, Room 712E, Washington, DC 20201; (416) 638-4622; (800) 994-9662 http://www.womenshealth.gov.

Office of the Special Assistant for Gulf War Illnesses. Four Skyline Place, 51113 Leesburg Pike, Suite 901, Falls Church, VA 22041; (800) 497-6261. www.gulflink.osd.milc

Ohsawa Macrobiotics P.O. Box 3998, Chico, CA 95927-3998, (530) 566-9765, (800) 232-2372, (866) 464-3616 http://www.gomf.macrobiotic.net/Info.htm

Optometric Extension Program. 2912 South Daimler St., Santa Ana, CA 92705.

Optometric Glaucoma Society. 5553 Taft Ave., Oakland, CA 94618. (925) 557-4181 http://www.optometricglaucomasociety.org

Organic Trade Association. PO Box 547, Greenfield, MA 01302. (413) 774-7511; (413) 774-6432 http://www.ota.com

Osteoporosis Canada. 1090 Don Mills Rd., Suite 301, Toronto, DC M3C 3R6; (800) 463-6842 http://www.osteoporosis.ca.

Overeaters Anonymous. World Service Office, P.O. Box 44020, Rio Rancho, NM, 87174-4020. (505) 891-2664. http://www.oa.org

P

Parkinson Alliance. PO Box 308, Kingston, NJ 08528-0308. (800) 579-8440. http://www.parkinsonalliance.net.

Parkinson's Action Network. 1000 Vermont Ave. NW, Washington, DC 20005. (202) 842-4101; (800) 850-4725 http://parkinsonsaction.org.

Parkinson's Disease Foundation. 710 West 168th Street, New York, NY 10032-9982. (212) 923-4778; (800) 457-6676 http://www.parkinsons-foundation.org.

Patience T'ai Chi Association. 2620 East 18th Street, Brooklyn, NY 11235. (718) 332-3477. http://www.patiencetaichi.com

People Against Cancer. 604 East Street, P.O. Box 10, Otho, IA 50569. (515) 972-4444. http://www.peopleagainstcancer.net/

PhysicalMind Institute. 1807 Second Street, Suite 15/16, Santa Fe, New Mexico 87505. (505) 988-1990 or (800) 505-1990. Fax: (505) 988-2837. themethod@trail.com. http://www.the-method.com

Physicians Committee for Responsible Medicine. 5100 Wisconsin Ave. NW, Suite 400, Washington, DC 20016; (202) 686-2210; (800) 6-ATKINS http://www.atkinsdietalert.org

Phytopharm Plc. Corpus Christi House, 9 West St.,. Godmanchester, PE29 2HY, 44 (0) 1480-437697. http://www.phytopharm.co.uk/contacts/headoffice/.

Pilates Studio. 2121 Broadway, Suite 201, New York, New York, 10023-1786. (800)474-5283 or (888) 474-5283 or (212)875-0189. Fax: (212) 769-2368. http://www.pilates-studio.com

Pittsburgh School of Pain Management. 1312 E. Carson Street, Pittsburgh, PA 15203. (412) 481-2553. http://www.painschool.com

Polycystic Ovarian Syndrome Association. P. O. Box 80517, Portland, OR 97280. (877) 775-PCOS. http://www.pcosupport.org

Postpartum Support International. PO Box 60931, Santa Barbara, CA 93160; (805) 967-7636; (800) 944-4773 http://www.postpartum.net.

Prevent Blindness America (Diabetes and Eyesight). 500 East Remington Rd., Schaumburg, IL 60173. (800) 331-2020. http://www.diabetes-sight.org

Pritikin Longevity Center 19735 Turnberry Way , Aventura, FL 33180, (305) 935-7131, (800) 327-4914, (305) 935-7371 http://www.pritikin.com

Q

Qigong Human Life Research Foundation. PO Box 5327. Cleveland, OH 44101. (216) 475-4712.

Quit Smoking, Center for Disease Control and Prevention. 1600 Clifton Road NE, Atlanta, GA, 30333. (404) 498-1515; (800)311-3435 http://www.cdc.gov/tobacco/quit_smoking/

R

Radionics Association. Baerlein House, Goose Green, Deddington, Oxon. OX15 0SZ, United Kingdom. (01869) 338852. http://www.interlog.com/~radionic/#institute.

RESOLVE. 8405 Greensboro Drive, Suite 800, McLean, VA 22102-5120. (703) 556-7172. (866) 455-7999 http://www. resolve.org.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Radionics Institute. 411 (W) 75 Eastdale, Toronto, Canada, M4C 5N3. http://www.mystical-www.co.uk/dowsing.html

Reflexology Association of America. 4012 Rainbow St. KPMB#585. . Las Vegas, NV 89103-2059. (401) 578-6661. http://www.reflexology-usa.org/.

Restless Legs Syndrome Foundation. 1610 Fourteenth St NW, Suite 300. Rochester, MN 55901. (877) INFO-RLS. http://www.rls.org.

Rocky Mountain Herbal Institute. P. O. Box 579, Hot Springs, MT 59845. (406) 741-3811. http://www.rmhiherbal.org

Rocky Mountain Institute of Yoga and Ayurveda. P.O. Box 1091, Boulder, CO 80306. (303) 499-2910. http://www.rmiya.org/index.php/

Rolf Institute of Structural Integration. 209 Canyon Blvd. P.O. Box 1868. Boulder, CO 80306-1868. (303) 449-5903. (800) 530-8875. http://www.rolf.org/

S

Scoliosis Association. PO Box 811705 Boca Raton, FL 33481-1705. (407) 368-8518. normlipin@aol.com. http://www.scoliosis-assoc.org

Scoliosis Research Society. 611 East Wells Street Milwaukee, WI 53202. (414) 289-9107. Tjackson@execinc.com. http://www.srs.org

Self Help for Hard of Hearing People, Inc. 7910 Woodmont Avenue, Suite 1200, Bethesda, MD 20814. (301) 657-2248. http://www.shhh.org

Sensory Integration International/The Ayres Clinic, 1514 Cabrillo Avenue, Torrance, CA 90501-2817. http://www.sensoryint.com

Seventh-Day Adventist Dietetic Association (SDADA). (SDADA is an official affiliate of the ADA.) 9355 Telfer Run, Orlando, FL 32817. (856) 694-2887. (800) 877-1600. http://www.sdada.org.

Shintaido of America. PO Box 1979, Novato, CA 94948-1979. http://www.shintaido.org.

Smokefree.gov, in affliliation with the National Cancer Institute, CDC, National Institutes of Health, Department of Health and Human Services, and USA.gov. 1600 Clifton Road NE, Atlanta, GA, 30333. (404) 498-1515; TTY 1-800-332-8615 http://www.smokefree.gov/

Society for Clinical and Experimental Hypnosis. 6728 Old McLean Village Drive, McLean, VA 22101.

Society for Light Treatment and Biological Rhythms. 824 Howard Ave., New Haven, CT 06519. Fax (203) 764-4324. http://www.sltbr.org

Society for Ortho-Bionomy International. 5875 North Lincoln Avenue, Suite 225. Chicago, IL 60659. (800) 743-4890. http://www.ortho-bionomy.org

Society of Cosmetic Chemists (SCC). 120 Wall Street, Suite 2400, New York, NY 10005-4088. (212) 668-1500. Fax: (202) 668-1504. http://www.scconline.org

Sound Healers Association. PO Box 2240, Boulder, CO ; (800) 246-9764 http://www.soundhealers association.org

Southwest School of Botanical Medicine. P. O. Box 4565, Bisbee, AZ 85603. (520) 432-5855. http://www.sws bm.com

Soyfoods Association of North America. 1050 Seventeenth St. NW, Suite 600, Washington, DC 20036. (292) 659-3520. (800) 877-1600. http://www.soyfoods.org.

Spondylitis Association of America. PO Box 5872, Sherman Oaks, CA 91413; (301) 496-8190; (800) 777-8189 http://www.spondylitis.org/

Stanford Center for Narcolepsy. Stanford University School of Medicine, 701-B Welch Rd., Room 146, Palo Alto, CA 94304. (650) 725-6517. http://www-med.stanford.edu/school/Psychiatry/narcolepsy.

StoneCircle Services. E-mail: info@stonecircledesign.com. http://www.stonecircledesign.com

Stress and Anxiety Research Society (STAR). STAR is an international multidisciplinary organization of researchers that began in the Netherlands in 1980. http://www.star-society.org.

Substance Abuse & Mental Health Services Administration. 1 Choke Cherry Road. Rockville, MD 20857 (212) 870-3400 http://www.samhsa.gov/

Supreme Master Ching Hai International Association. P. O. Box 730247, San Jose, CA 95173-0247. http://www.godsdirectcontact.org

T

Texas Heart Institute Heart Information Service. P.O. Box 20345, Houston, TX 77225-0345. 1-800-292-2221. http://www.tmc.edu/thi/his.html

Third Age, Inc. 25 Stillman St., Suite 102. San Francisco, CA 94107-1309. (212) 639-2000. www.thirdage.com.

Thyroid Foundation of America. One Longfellow Place, Suite 1518, Boston, MA 02114; (301) 941-0200; (800) 832-8321 http://www.tsh.org/

TMJ Association. PO Box 26770. Milwaukee, WI 53226-0770. (262) 432-0350. http://www.tmj.org.

Touch for Health Kinesiology Association. PO Box 392, New Carlisle, OH 45344-0392. (937) 845-3404. (800) 466-8342 http://www.tfhka.org.

Tourette Syndrome Association, Inc. 42-40 Bell Boulevard, Bayside, NY 11361-2820. (718) 224-2999. Fax: (718) 279-9596. ts@tsa-usa.org. http://www.tsa-usa.org

Trager Institute. 21 Locust Avenue. Mill Valley, CA 94941-2806. (415) 388-2688. Fax: (415) 399-2710. admin@trager.com. http://www.trager.com

TTEAM/Ttouch in Canada. Rochdell Road, Vernon, BC V1B 3E8. (250) 545-2336. http://www.tellingtontouch.com

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

U

U.S. Food and Drug Administration (FDA). 5600 Fishers Lane, Rockville, MD 20857-0001. (888) INFO-FDA. http://www.fda.gov

U.S. Food and Drug Administration Office of In Vitro Diagnostic Device Evaluation and Safety. HFZ-440 2098 Gaither Road, Rockville, MD 20850. (301) 594-3084. http://www.fda.gov/cdrh/oivd

U.S. Fund for UNICEF. 125 Maiden Lane, New York, NY 10038; +1 (613) 782-6812; (800) 4UN-ICEF http://www.unicefusa.org/

United Cerebral Palsy Association. 1660 L St. NW, Suite 700, Washington, DC 20036-5602; (800) USA-5-UCP http://www.ucpa.org

United Network for Organ Sharing. PO Box 2484, Richmond, VA 23218; (888) 894-6361 http://www.unos.org

United Plant Savers. P.O. Box 98, East Barre, VT 05649. (802) 496-7053. Fax: (802) 496-9988. http://www.plantsavers.org

United States Administration on Aging. 330 Independence Ave. SW. Washington, DC 20201. (202) 619-0724. http://www.aoa.gov.

United States Department of Agriculture (USDA), Agricultural Research Service (ARS). 5601 Sunnyside Avenue, Beltsville, MD 20705. (301) 504-1651. http://www.ars.usda.gov

United States Department of Agriculture, Food and Nutrition Information Center. 10301 Baltimore Ave., Department of Agriculture. Beltsville, MD 20705-2351. (301) 504-5719. http://www.nal. usda.gov/fnic/.

United States Department of Agriculture, Research Service. Jamie L. Whitten Building. 1400 Independence Ave. SW. Washington, DC 20250. (202) 234-2352. http://www.ars.usda.gov.

United States Department of Agriculture. Center for Nutrition Policy and Promotion. 1120 20th Street NW, Suite 200, North Lobby, Washington, D.C. 20036. (202) 418-2312. http://www.usda.gov/cnpp

United States Department of Agriculture. Washington, DC 20250. http://www.usda.gov

United States Food and Drug Administration (FDA), Center for Food Safety and Applied Nutrition. 5100 Paint Branch Parkway, College Park, MD 20740. (888) SAFEFOOD. http://www.cfsan.fda.gov

United States Pharmacopoeia (USP). 12601 Twinbrook Parkway, Rockville, MD 20852. (800) 822-8772. http://www.usp.org

University of Maryland Health Center. Health Library. . College Park, MD 20742. (301) 314-8180. http://www.umm.edu.

Upledger Institute. 11211 Prosperity Farms Road, Palm Beach Gardens, FL 33410. (800) 233-5880. Fax: (561) 622-4771. http://www.upledger.com

V

Valley Cedar Leaf Oil. RR #5, Eganville, Ontario, Canada K0J 1T0. (613) 628-2892. http://www.valleycedarleafoil. com

Vegan Outreach. 211 Indian Drive, Pittsburgh, PA 15238. (412) 968-0268. (800) 877-1600. http://www.veganoutreach.org/.

Vegan Society U.K. Donald Watson House, 21 Hylton St.. Hockley, Puerto Rico B18 6HJ, (0121) 523-1730. http://www.vegansociety.com.

Vegetarian Nutrition Dietetic Practice Group, American Dietetic Association. 120 S. Riverside Plaza, Suite 2000, Chicago, IL 60606-6995. (518) 568-7970. (800) 877-1600. http://www.vegetariannutrition.net/.

Vegetarian Resources Group. PO Box 1463, Baltimore, MD 21203. (410) 366-8343. (800) 877-1600. http://www.vrg.org.

Vestibular Disorders Association (VEDA). PO Box 4467, Portland, OR 97208-4467. (800) 837-8428. http://www.vestibular.org

Veterinary Botanical Medicine Association (VBMA). c/o Susan G. Wynn, DVM, 334 Knollwood Lane, Woodstock, GA 30188. (303) 449-2265. (888) 644-6226. http://www.vbma.org.

Vitamin C Foundation. P. O. Box 73172, Houston, TX 77273; (281) 443-3634; (888) 443-3634 www.vitamincfoundation.org/found.htm

W

Women in Balance. P.O. Box 5517 , Washington, DC 20016. http://www.womeninbalance.

Women to Women. P.O. Box 306, Portland, ME 04112. (800)798 7902. http://www.womentowomen.com.

Women's Cancer Resource Center. 5741 Telegraph Ave., Oakland, CA 94609; (416) 961-7223; (888) 421-7900 http://www.wcrc.org.

World Headache Alliance. 41 Wellbeck St., London, IL W1G 8EA; (856) 423-0043; (888) 653-5552 http://www.w-h-a.org

World Health Organization (WHO). Avenue Appia 20, 1211, Geneva, NY 27; +41 22 791 2111; (800) 4UN-ICEF http://www.who.int/en/

World Hypnosis Organization, Inc. 2521 W. Montrose Avenue, Chicago, IL 60618. http://www.worldhypnosis.org/about.html

Y

Yoga Alliance. 122 West Lancaster Avenue, Suite 204,. Reading, PA 19607-1874. (610) 777-7793. Fax:(610) 777-0556 http://www.yogaalliance.org

Yoga Research and Education Center (YREC). 2400A County Center Drive, Santa Rosa, CA 95403. (707) 566-0000. http://www.yrec.org.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

GLOSSARY

A

A1C. A test that measures a diabetic's average blood sugar (glucose) levels over two to three months.

AIDS DEMENTIA COMPLEX. A type of brain dysfunction caused by HIV infection that causes difficulty thinking, confusion, and loss of muscular coordination.

ABLATION. The removal of abnormal tissue growths by surgery.

ABORTIFACIENT. A drug or preparation given to induce abortion.

ABRASION. Also called a scrape. The rubbing away of the skin surface by friction against another rough surface.

ABSCESS. A localized collection of pus in the skin or other body tissue caused by infection.

ABSORPTION SPECTROMETRY. A scientific procedure to determine the chemical composition of an unknown substance.

ABSTINENCE. Choosing not to engage in a certain action, such as sex.

ACANTHOSIS NIGRICANS. A localized darkening of the skin that is associated with insulin resistance. This is not seen in all cases, and is considered a rare disorder.

ACCOMMODATION. The ability of the lens to change its focus from distant to near objects and vice versa. It is achieved through the action of the ciliary muscles that change the shape of the lens.

ACETALDEHYDE. An intermediate product in the breakdown pathway of ethanol; believed to cause hangover.

ACETYLCHOLINESTERASE. An enzyme that interferes with the function of acetylcholine.

ACETYLCHOLINE. A major neurotransmitter that balances the effects of dopamine in the brain and transmits nerve impulses.

ACHENE. Any small, dry, hard one-seeded case or fruit that does not split open at maturity to discharge the seed. Dandelion seeds are held inside achenes.

ACONITINE. A toxic alkaloid contained in aconite. As little as 2 mg taken internally may be fatal.

ACOUSTIC NEUROMA. A benign tumor that grows on the nerve leading from the inner ear to the brain. As the tumor grows, it exerts pressure on the inner ear and causes severe vertigo.

ACQUIRED IMMUNE DEFICIENCY SYNDROME (AIDS). A disease in which the immune response is impaired. The disease is caused by the human immunodeficiency virus (HIV), which is spread by direct contact with body fluids such as blood and semen.

ACRODERMATITIS ENTEROPATHICA. A Hereditary metabolic problem characterized by dermatitis, diarrhea, and poor immune status.

ACTIN. A protein that functions in muscular contraction by combining with myosin.

ACUPOINT. A pressure point stimulated in acupressure.

ACUPRESSURE. An ancient form of Asian healing massage that involves applying pressure (without needles) to special points or areas on the body in order to maintain good health, cure disease, and restore vitality.

ACUPUNCTURE. An ancient Chinese method of relieving pain or treating illness by piercing specific areas of the body with fine needles.

ACUTE PRESCRIBING. Homeopathic treatment for self-limiting illnesses with abrupt onset.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

ACUTE RETROVIRAL SYNDROME. A group of symptoms resembling mononucleosis that often are the first sign of HIV infection.

ACUTE. Refers to a disease or symptom that has a sudden onset and lasts a relatively short period of time.

ACYCLOVIR. An antiviral drug that is available under the trade name Zovirax, in oral, intravenous, and topical forms. The drug prevents the varicella zoster virus from replicating.

ADAMS TEST. A screening test in which a child being examined for scoliosis is asked to bend forward with the feet together and the knees straight.

ADAPTOGEN. A substance (plant or drug) with biologically active components that increase the adaptive ability of an organism stressed by internal and external factors; helps to counter and prevent damage from adverse physical, chemical, or biological stressors.

ADDICTION. The state of being both physically and psychologically dependent on a substance.

ADENOCARCINOMA. A cancerous tumor derived from epithelial (surface) cells or a gland-like tumor.

ADENOID. A collection of lymph tissue located in the nasopharynx.

ADENOVIRUS. A virus that affects the upper respiratory tract.

ADHESION. The joining or sticking together of parts of an organ that are not normally joined together.

ADHESIVE CAPSULITIS. Adhesions and inflammation in the shoulder capsule that restrict movement.

ADIPOSE. Fat tissue, which can act as an endocrine organ by converting androgens to estrogen via the enzyme aromatase.

ADJUNCTIVE. Refers to a form of treatment that is not strictly necessary to a therapy regimen but is helpful.

ADJUSTMENT DISORDER. A psychiatric disorder marked by inappropriate or inadequate responses to a change in life circumstances.

ADJUSTMENT. A specific type of manipulation of the spine designed to return it to proper structural and functional form.

ADJUVANT THERAPY. Treatment involving radiation, chemotherapy (drug treatment), hormone therapy, biotherapeutics, or a combination of any of these given after the primary treatment in order to rid the body of residual microscopic cancer.

ADJUVANT. A substance or medication used together with a vaccine or other drug to assist the effect of the main ingredient.

ADRENAL GLANDS. A pair of endocrine organs, the adrenal glands sit above both kidneys. The adrenal cortex produces several hormones including cortisol, DHEA, estrogen and progesterone, and aldosterone.

ADRENAL HORMONE. The adrenocortical hormones are cortisol and cortisone. They are anti-inflammatory substances that aid in the function of a number of body systems, including the central nervous system, the cardiovascular system, the musculoskeletal system, and the gastro intestinal system.

ADRENALINE. Also known as the "emergency hormone," adrenaline is produced by the body during times of stress. Excess adrenaline levels can increase blood pressure and heart rate, leading to heart disease.

ADSORPTION. A process in which an extremely thin layer of one substance (liquid, gas, or solid) forms on the surface of another substance.

ADULTERANT. A substance that makes something impure or inferior.

AEROBIC. Any cardiovascular exercise that increases heart rate and breathing, such as jogging, bicycling, and swimming.

AESCINATE. A chemical found in horse chestnut that is effective in relieving the tissue swelling associated with varicose veins.

AFFECTIVE DISORDER. An emotional disorder involving abnormal highs and/or lows in mood. Now termed mood disorder.

AFFECT. The expression of emotion displayed to others through facial expressions, hand gestures, tone of voice. Types of affect include: flat (inanimate, no expression), blunted (minimally responsive), and inappropriate.

AFFERENT. Sensory signals that travel from the sensory cells at the periphery of the body back to the brain and spinal cord.

AGE-RELATED MACULAR DEGENERATION (ARMD). A chronic, painless eye disease occurring in people over age 50 that damages the macula, or central part of the retina, causing irreversible loss of central vision.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

AGGRAVATION. In homeopathy, a temporary worsening or intensification of the patient's symptoms prior to improvement and healing.

AGNI. Ayurvedic term for strength of digestion.

AGNUSIDE. The active ingredient in chasteberry.

AGONIST. A medication that has an affinity for and stimulates the activity of cell receptors that are normally stimulated by naturally occurring substances, such as melatonin.

AGORAPHOBIA. Abnormal anxiety regarding public places or situations from which the person may wish to flee or in which he or she would be helpless in the event of a panic attack.

AGRANULOCYTOSIS. A blood disorder characterized by a reduction in the number of circulating white blood cells (granulocytes). White blood cells defend the body against infections. Agranulocytosis is a potential side effect of some newer antipsychotic medications.

AIKIDO. A Japanese martial art developed during the early twentieth century by Morihei Ueshiba. Literally translated, aikido means "the way of harmony with universal energy" or "the way of a loving spirit."

AKATHISIA. Agitated or restless movement, usually affecting the legs and accompanied by a sense of discomfort; a common side effect of neuroleptic medications.

AKA. In Huna, the shadow body of the low self. The aka forms threads or cords between the low self and other persons, objects, or the High Self. These aka threads serve as energy channels.

AKINESIA. Inability to move.

ALBUMINURIA. The presence of high levels of the protein albumin in the urine.

ALDOSTERONE. A hormone produced by the adrenal gland, instrumental in the regulation of sodium and potassium resorption by the kidney.

ALENDRONATE. A non-hormonal drug used to treat osteoporosis in postmenopausal women.

ALEXANDER TECHNIQUE. A movement therapy that identifies and changes poor physical habits that may cause fatigue. The body is put into a state of relaxation and balance through the use of simple movements.

ALGAE. A mainly waterborne organism that produces energy from light and chlorophyll.

ALKALOID. Any of a large class of bitter-tasting alkaline ring compounds that contain nitrogen and are common in plants. Periwinkle, nicotine, caffeine, morphine, and quinine belong to this class of compounds, and are generally toxic.

ALLERGEN. A foreign substance, such as mites in house dust or animal dander that, when inhaled, causes the airways to narrow and produces symptoms of asthma.

ALLERGIC REACTION. An inappropriate or exaggerated genetically determined reaction to a chemical that occurs only on the second or subsequent exposures to the offending agent, after the first contact has sensitized the body.

ALLERGIC RHINITIS. Inflammation of the mucous membranes of the nose and eyes in response to an allergen.

ALLOPATHIC. Conventional medical treatment of disease symptoms that uses substances or techniques to oppose or suppress the symptoms.

ALLOPATHY. A method of treating disease by using substances that are opposite to the symptoms presented by a patient.

ALLOPURINOL. A drug that corrects hyperuricemia by inhibiting urate production.

ALOE CONCENTRATE. Aloe gel from which the water has been removed.

ALOE GEL. Thick, undiluted substance from the central portion of the aloe leaf.

ALOE JUICE. A product for oral use, which is composed of at least 50% aloe gel.

ALOE LATEX. Bitter yellow sap from the middle leaf layer.

ALPHA-2 AGONIST. A class of drugs that bind to and stimulate alpha-2 adrenergic receptors, causing responses similar to those of adrenaline and noradrenaline, by inhibiting aqueous humor production.

ALPHA-FETOPROTEIN. A substance produced by a fetus's liver that can be found in the amniotic fluid and in the mother's blood. Abnormally high levels of this substance suggest there may be defects in the fetal neural tube.

ALPHA-TOCOPHEROL. An antioxidant derivative of vitamin E that stabilizes cell membranes.

ALTERATIVE. A substance that cleanses and purifies the blood.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

ALTERNATIVE MEDICINE. A system of healing that rejects conventional, pharmaceutical-based medicine and accepts the use of dietary supplements and therapies such as herbs, vitamins, minerals, massage, and cleansing diets.

ALVEOLI. Small, thin-walled sacs located at the end of the smallest airways in the lungs where the exchange of oxygen and carbon dioxide takes place.

ALZHEIMER'S DISEASE. A degenerative brain disease caused by physiological changes inside the brain. As a result, the patient experiences impaired memory and thought processes.

AMARGOGENTIN. An extremely bitter substance found in gentian that makes it an effective digestive stimulant.

AMBIENT. Of the surrounding area or environment.

AMEBIASIS. An infection or disease caused by amoebas.

AMENORRHEA. The absence of menses in women of childbearing age in the absence of pregnancy.

AMINO ACID DECARBOXYLATE (AADC) INHIBITORS. Drugs, such as carbidopa and benserazide, that block the enzyme AADC, which breaks down levodopa in the blood.

AMINO ACIDS. A group of organic compounds that are vital to living cells, and serve as the building blocks of protein.

AMPHETAMINES. A group of drugs that stimulate the central nervous system. They are used medically to counteract depression, but are often used illegally as stimulants.

AMPULLA OF VATER. The widened portion of the duct through which the bile and pancreatic juices enter the intestine. *Ampulla* is a Latin word describing a bottle with a narrow neck that opens into a wide body.

AMPUTATION. The surgical removal of a part of the body.

AMSLER GRID. A checkerboard pattern with a dot in the center that is used to diagnose macular degeneration.

AMYLOID PLAQUES. Protein fragments produced normally in the body that accumulate and form hard, insoluble plaques between the nerve cells in the brain and interfere with neural activity.

AN MO. A form of Chinese massage that treats the whole body and emphasizes balancing yin and yang techniques in the treatment. Its name means "press and stroke" in Chinese.

ANABOLIC STEROIDS. A group of mostly synthetic hormones sometimes taken by athletes to temporarily increase muscle size.

ANAEROBE. A type of bacterium that does not require oxygen to live. The tetanus bacterium is an anaerobe.

ANALGESIC. A medication or preparation given for pain relief.

ANAPHRODISIAC. A substance or medication that suppresses sexual desire.

ANAPHYLACTIC SHOCK. A severe allergic reaction that causes blood pressure drop, racing heart, swelling of the airway, rash, and possibly convulsions.

ANAPHYLAXIS. A possibly life-threatening allergic reaction causing increased sensitivity to an allergen. It can result in a sharp drop in blood pressure and difficulty breathing.

ANDROGENS. Male sex hormones that are predominant in males, and linked with the development of acne.

ANDROPAUSE. Midlife hormonal changes in men.

ANECDOTAL EVIDENCE. A category of medical or dietary evidence based on or consisting of individual reports, usually written by observers who are not doctors or scientists.

ANEMIA. Condition in which the blood is deficient in red blood cells, in hemoglobin, or in total volume. Common symptoms include paleness, fatigue, and shortness of breath.

ANESTHESIA. Method of controlling pain during surgery.

ANESTHETICS. Drugs that cause a loss of feeling, especially of pain. Some anesthetics also cause a loss of consciousness.

ANEURYSM. A sac or weak spot formed by the stretching of the wall of an artery.

ANGINA. Chest pain that happens when diseased blood vessels restrict the flow of blood to the heart. Angina is often the first symptom of coronary artery disease.

ANGIOEDEMA. Severe non-inflammatory swelling of the skin, organs, and brain that can also be accompanied by fever and muscle pain.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

ANGIOGENESIS. The development of new blood vessels, specifically those that supply tumors with blood and nutrients for growth.

ANGIOGRAPHY. X-ray imaging of the arteries in a particular part of the body. Angiography is often performed in order to determine the location of internal bleeding.

ANGIOPLASTY. Surgery to dilate the narrowed or blocked part of a blood vessel.

ANHEDONIA. Loss of the capacity to experience pleasure. One of the so-called negative symptoms of schizophrenia, anhedonia is also a symptom of major depression.

ANISOMETROPIA. An eye condition in which the eyes have unequal refractive power.

ANKYLOSING SPONDYLITIS. A type of arthritis that causes gradual loss of flexibility in the spinal column. It occurs most commonly in males between the ages of 16 and 35 and may be initiated by a food allergy component, such as an allergy to wheat.

ANKYLOSING. A process by which joint bones fuse, stiffen, and/or become rigid.

ANNUAL. A plant that completes its life cycle of growing leaves, blooming, and producing seeds in a single year or growing season.

ANNULUS FIBROSIS. The outer portion of the intervertebral disk made primarily of fibrocartilage rings.

ANODYNE. A medicinal herb that relieves distress or soothes pain.

ANORECTIC. A drug that reduces the appetite.

ANOREXIA NERVOSA. A serious, sometimes fatal eating disorder characterized by intense fear of being fat and severe weight loss. It primarily affects teenage and young adult females. Sufferers see themselves as fat even when they are not.

ANOSOGNOSIA. Lack of awareness of the nature of one's illness. The term is usually applied to stroke patients, but is sometimes used to refer to lack of insight on the part of patients with schizophrenia. Anosognosia appears to be caused by the illness itself.

ANOVULATION. The absence of ovulation in the menstrual cycle.

ANTACID. Common medication that neutralizes stomach acid for the short-term treatment of heartburn.

ANTHELMINTHIC. A medication that destroys or expels parasitic worms from the digestive tract.

ANTHOCYANOSIDES. Flavonoid antioxidants from plant pigments that are particularly active in the eye.

ANTHRAQUINONES. A group of plant substances known to produce an irritant laxative effect.

ANTHRAX. A highly toxic strain of bacteria.

ANTHROPOLOGY. The study of the origin and physical, social, and cultural development and behavior of groups of people.

ANTHROPOSOPHICAL MEDICINE. A form of alternative medicine dating back to the 1920s. The focus is on ensuring that individuals possess within themselves an environment conducive to health.

ANTI-ANDROGEN DRUGS. Drugs that block the activity of the male hormone.

ANTI-FUNGAL. A medication prescribed to treat infections caused by fungi.

ANTI-INFLAMMATORY. A medication or substance that reduces the symptoms of fever and inflammation.

ANTI-MOTILITY MEDICATIONS. Medications such as loperamide (Imodium), diphenoxylate (Lomotil), or medications containing codeine or narcotics that decrease the ability of the intestine to contract. These can worsen the condition of a patient with dysentery or colitis.

ANTIANDROGEN. A substance that blocks the action of androgens, the hormones responsible for male characteristics.

ANTIBIOTIC. An agent able to kill or interfere with the development of bacteria and other micro-organisms.

ANTIBODY. Any of numerous protein molecules produced by the immune system as a primary immune defense to destroy or neutralize foreign objects. Each antibody recognizes a specific target, referred to as the antigen.

ANTICHOLINERGIC. A medication or other substance that blocks certain parasympathetic nerve impulses.

ANTICOAGULANT. Any substance that reduces or prevents the blood's tendency to clot in order to prevent blockages in the arteries.

ANTICONVULSANT MEDICATION. A drug used to prevent convulsions or seizures; often prescribed in the treatment of epilepsy.

ANTIDEPRESSANT. A type of medication that is used to treat depression; sometimes used to treat other disorders, such as autism.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

ANTIDIURETIC. A substance that diminishes the formation of urine.

ANTIDOTE. Any substance that slows or stops the effects of a homeopathic remedy. Coffee and camphor are considered to be particularly powerful antidotes. Also a remedy to counteract a poison.

ANTIEMETIC. Prevents or alleviates nausea or vomiting.

ANTIGEN. Part of an invading microorganism, which causes tissue damage and which also stimulates the body's immune system to produce antibodies.

ANTIHISTAMINE. A drug that blocks the action of histamine (a substance that produces an allergic reaction) and is used to control allergies.

ANTIHYPERTENSIVE. A medication given to lower blood pressure.

ANTIMALARIAL. Any substance that reduces the effects of the tropical disease malaria.

ANTIMICROBIAL. A plant substance that acts to inhibit the growth of harmful microorganisms or acts to destroy them.

ANTIOXIDANT. A substance that prevents oxidative damage, such as cellular damage caused by free radicals.

ANTIPRURITIC. A type of medication applied to the skin to stop itching.

ANTIPSORIC. A homeopathic remedy that is an effective constitutional treatment for the psoric miasm. *Calcarea carbonica* is one of three major antipsoric remedies.

ANTIPSYCHOTIC MEDICATION. A drug used to treat psychotic symptoms, such as delusions or hallucinations, in which patients are unable to distinguish fantasy from reality.

ANTIPYRETIC. A substance or medication that combats fever with cooling properties.

ANTISCORBUTIC. An agent that is effective against scurvy, like vitamin C.

ANTISEPTIC. A substance that works to inhibit the growth and reproduction of bacteria and viruses.

ANTISPASMODIC. A substance that relieves spasm or uncontrolled contraction, usually of the smooth or involuntary muscle of the arteries, intestines, or the airways.

ANTITOXIN. A vaccine used to stimulate immunity against a specific disease.

ANTITUMOR. A property of plant chemistry that acts to prevent or inhibit the formation or growth of tumors.

ANTITUSSIVE. A drug that is used to control coughing.

ANTIVENIN. Antibodies taken from the serum of horses that can be used to neutralize the venom of snakes and insects.

ANUS. The opening at the lower end of the rectum. The anus and rectum are both part of the large intestine.

ANXIETY DISORDER. The experience of prolonged, excessive worry about circumstances in one's life.

ANXIOGENIC. Tending to produce anxiety.

ANXIOLYTIC. A medication that alleviates anxiety.

APANA. Life sustaining energy centered in the larger intestine; the fifth of the five airs of Ayurvedic philosophy; the life force governing expulsion activity.

APHRODISIAC. A substance or food thought to stimulate erotic desire and enhance sexual performance. Aphrodisiacs are named for Aphrodite, the ancient Greek goddess of love.

APIGENIN. A bioflavonoid contained in chamomile that appears to inhibit *H. pylori.*

APITHERAPY. A form of alternative therapy based on the use of honey and other bee products.

APLASTIC. Exhibiting incomplete or faulty development.

APNEA. The temporary absence of breathing.

APOCRINE. A type of glandular secretion in which the top portion of the secreting cells is released along with the secreted substances.

APOPTOSIS. Structural changes within cells of a multi-cell organism leading to controlled and regulated cell death, also called programmed cell death (PCD); a natural means to eliminate unnecessary and unhealthy cells.

APPETITE SUPPRESSANT. A drug that decreases feelings of hunger. Most work by increasing levels of serotonin or catecholamine, chemicals in the brain that control appetite.

AQUEOUS HUMOR. A clear fluid in the posterior and anterior chambers of the eye that moves from back to front and exits the eye through a small canal into the venous system.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

AREA POSTREMA. A structure of the brain stem that triggers vomiting in response to toxins in the bloodstream and cerebrospinal fluid.

AROMATHERAPY. The therapeutic use of plant-derived, aromatic essential oils to promote physical and psychological well-being.

ARRHYTHMIA. An abnormal rate or rhythm of the heartbeat.

ART THERAPY. The use of art media to assess and treat an individual's development, abilities, personality, interests, concerns, or conflicts.

ARTEMISININ. An antimalarial agent derived from an ancient Chinese herbal remedy. Two of the most popular varieties are artemether and artesunate, used mainly in Southeast Asia in combination with mefloquine.

ARTERIES. Blood vessels that carry oxygenated blood to organs and other tissues of the body.

ARTERIOLE. The tiny extensions of arteries that lead into the capillaries.

ARTERIOSCLEROSIS. A disease characterized by build-up on the artery walls that can lead to the obstruction of blood flow.

ARTHRALGIA. Joint pain.

ARTHRITIS. An inflammatory condition affecting joints.

ARTHROGRAPHY. An imaging technique that is sometimes used to evaluate a joint associated with internal derangement.

ARTICULAR BONES. Two or more bones connected to each other via a joint.

ASANAS. Physical postures associated with the practice of hatha yoga.

ASCENDING INFECTION. Infection which begins in the urinary bladder and travels through the ureters up to the kidneys.

ASCOMYCETE. Any class of higher fungi with septate hyphae and spores formed in the asci.

ASCORBIC ACID. Another name for vitamin C, derived from its ability to prevent scurvy.

ASCOSPORES. Any spores contained in the ascus, which is the oval or tubular spore case of an ascomycete.

ASPERGER SYNDROME. A condition in which individuals have autistic behavior but normal language skills.

ASPIRATION. An action during which solids or liquids that should be swallowed into the stomach are instead breathed into the respiratory system.

ASTHMA. A lung condition in which the airways become narrow due to smooth muscle contraction, causing wheezing, coughing, and shortness of breath.

ASTIGMATISM. An eye condition that causes a person to see distorted images due to an abnormality in the curvature of the eye's lens.

ASTRAL. Of or from the stars.

ASTRINGENT. Any substance or medication that causes soft tissue to contract or constrict.

ATAXIA. A condition in which balance and coordination are impaired.

ATHEROSCLEROSIS. Disease of the arterial wall in which the inner layer thickens, causing narrowing of the channel and thus impairing blood flow.

ATHETOID. The type of CP that is marked by slow, writhing, involuntary muscle movements.

ATHLETE'S FOOT. A fungal infection between the toes, officially known as tinea pedis.

ATOPIC DERMATITIS. Infection of the skin as a result of exposure to airborne or food allergens.

ATOPY. A group of diseases, including eczema, that develop in people with an inherited tendency to develop immediate antibodies to common environmental allergens.

ATRIOVENTRICULAR BLOCK. A dysfunctional electrical function of cardiac muscle.

ATROPHIC VAGINITIS. An inflammation of the vagina that develops when the estrogen levels in the body drop. It is usually associated with normal menopause or with surgical removal of the ovaries, but can occur with breast-feeding or premature menopause.

ATROPHY. A progressive wasting and loss of function of any part of the body.

ATTENTION DEFICIT DISORDER (ADD). A learning disability characterized by an inability to pay attention or concentrate on a specific activity. It is characterized by daydreaming.

ATTENTION-DEFICIT/HYPERACTIVITY DISORDER. A behavioral disorder marked by inattentiveness, hyperactivity, and impulsivity.

ATTUNEMENT. Life energy teaching given by a Reiki master to a student.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

ATYPICAL ANTIPSYCHOTICS. A group of medications for the treatment of psychotic symptoms introduced in the 1990s. The atypical antipsychotics include clozapine, risperidone, quetiapine, ziprasidone, and olanzapine. They are sometimes called serotonin dopamine antagonists.

AUDIOLOGIST. A health care professional who performs diagnostic testing of impaired hearing.

AUGMENTATIVE COMMUNICATION DEVICES. Computers, picture boards, and other devices that increase the ability to communicate, either with or without speech.

AURA. An energy field that is thought to emanate from the human body and to be visible to people with special psychic or spiritual powers.

AURICULAR ACUPUNCTURE. Acupuncture using only points found on the ears.

AUTHENTIC MOVEMENT. A type of movement that is influenced heavily by Jungian analysis, and works by analyzing the internal images of the patient. Patients are also urged to dance only when they feel the "impulse" to move.

AUTISM. A developmental disability that appears early in life, in which normal brain development is disrupted and social and communication skills are retarded, sometimes severely.

AUTODIGESTION. A process in which pancreatic enzymes are activated prematurely and begin to digest the pancreas itself.

AUTOGENIC TRAINING. A form of self-hypnosis developed in Germany that appears to be beneficial to migraine sufferers.

AUTOGENOUS VACCINE. A vaccine made of dead bacteria from a patient's own body.

AUTOHEMOTHERAPY. A form of ozone therapy in which a small quantity of the patient's blood is withdrawn, treated with a mixture of ozone and oxygen, and reinfused into the patient.

AUTOIMMUNE DISEASE. Condition in which a person's immune system attacks the body's own cells, causing tissue destruction.

AUTOIMMUNITY. A condition in which the body's immune system produces antibodies in response to its own tissues or blood components instead of to foreign particles or microorganisms.

AUTOINTOXICATION. Self-poisoning by toxic products formed within the body during intestinal digestion. This term was coined around 1885 as part of a theory that regarded intestinal function as a central aspect of health.

AUTONOMIC NERVOUS SYSTEM. The part of the nervous system that controls so-called involuntary functions such as heart rate, salivary gland secretion, respiratory function, and pupil dilation.

AVALOKITESVARA. The Sanskrit name of Quan yin.

AVULSION. The forcible separation of a piece from the entire structure.

AXONS. The conducting fiber of a nerve cell. Axons vary from a fraction of an inch to several feet in length.

AYURVEDIC MEDICINE. A 5,000-year old system of holistic medicine developed in India. Ayurvedic medicine is based on the idea that illness results from a personal imbalance or lack of physical, spiritual, social, or mental harmony.

AZOLE. Any member of a group of chemical compounds with five-membered rings containing one or more nitrogen atoms. Several azoles are used as antifungal medications.

B

BABESIOSIS. A disease caused by protozoa of the genus *Babesia* characterized by a malaria-like fever, anemia, vomiting, muscle pain, and enlargement of the spleen. Babesiosis, like Lyme disease, is carried by a tick.

BACILLUS CALMETTE-GUÉRIN (BCG). A vaccine made from a damaged bacillus similar to the tubercle bacillus, which may help prevent serious pulmonary tuberculosis and its complications.

BACOSIDES. The name of two chemicals found in brahmi that are believed to aid memory by improving the efficiency of nerve impulse transmission.

BACTEREMIA. The presence of bacteria in the bloodstream.

BACTERICIDAL. An agent that destroys bacteria (e.g., *Staphylococci aureus, Streptococci pneumoniae, Escherichia coli, Salmonella enteritidis*).

BACTERICIDE. A substance that kills bacteria.

BACTERIURIA. The presence of bacteria in the urine.

BAICALEIN. A compound found in skullcap that appears to be a cancer chemopreventive.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

BARBITURATE. A group of drugs that have sedative properties. Barbiturates depress the body's respiratory rate, blood pressure, temperature, and central nervous system.

BARIATRICS. The branch of medicine that deals with the prevention and treatment of obesity and related disorders.

BARRETT'S ESOPHAGUS OR BARRETT'S SYNDROME. Changes in the type of cells lining the esophagus. Sometimes associated with the development of esophageal cancer.

BASAL GANGLIA (SINGULAR, GANGLION). Masses of gray matter in the cerebral hemispheres of the brain that are involved in the regulation of voluntary movements. Tourette syndrome has been linked to these areas of the brain.

BEHAVIOR MODIFICATION. Therapy aimed at changing behavior by substituting problem behaviors with more useful activities.

BEHAVIORAL MEDICINE. The branch of medicine that studies mind/body relationships.

BEHAVIORAL THERAPY. A collection of techniques for treating mental disorders based upon changing abnormal behavior rather than attempting to analyze its fundamental basis. It is particularly used in phobic or obsessional disorders, and seeks to eliminate symptoms.

BELL'S PALSY. Facial paralysis or weakness with a sudden onset, caused by swelling or inflammation of the seventh cranial nerve, which controls the facial muscles. Disseminated Lyme disease sometimes causes Bell's palsy.

BELLERGAL. A potent combination of ergotamine tartrate (a blood vessel constricting substance often used for migraines), belladona alkaloids (a potentially poisonous substance with sedative and anti-spasmodic effects), and phenobarbitol (a hypnotic sedative).

BENIGN PROSTATIC HYPERPLASIA (BPH). A noncancerous condition of the prostate that causes growth of the prostate tissue, thus enlarging the prostate and obstructing urination.

BENIGN. Not malignant, noncancerous.

BENTONITE CLAY. A green clay of aluminum silicate containing magnesium and trace minerals. The clay can draw out agents of infection.

BENZODIAZEPINES. A class of drugs that have a hypnotic and sedative action, used mainly as tranquilizers to control symptoms of anxiety or panic.

BERBERINE. A white or yellow water-soluble alkaloid with antibacterial properties. Coptis, goldenseal, and barberry are all plants that contain berberine.

BERIBERI. A condition caused by a thiamine deficiency, with peripheral neurologic (nerve), cerebral (brain), and cardiovascular (heart and blood vessel) symptoms.

BEST-CASE SERIES. A preliminary study that relies on assumptions about patient outcomes without a specific treatment, compared with similar patients receiving the best available conventional treatments. There are no control cases.

BETA AGONIST. Class of substances that relieve bronchoconstriction, among other effects.

BETA-AMYRIN PALMITATE. A compound found in lobelia that has antidepressant properties.

BETA-BLOCKER. A class of drugs that bind beta-adrenergic receptors and thereby decrease the ability of the body's own natural epinephrine to bind to those receptors, leading to the reduction of aqueous humor secretion.

BETA-GLUCANS. Complex carbohydrates contained in oats and other cereal grains. They are thought to be useful in managing diabetes as well as lowering blood cholesterol levels.

BETA-SITOSTEROL. A plant lipid with considerable biological activity; even in very amounts it is found to be anti-inflammatory and to have positive effects in treating BPH.

BIENNIAL. A plant that takes two years or two distinct growing seasons to complete its life cycle. In the first year it grows leaves only; in the second it flowers and produces seeds.

BILE. A bitter, greenish liquid secreted by the liver that aids in the digestion and absorption of fats.

BILIARY DUCT DISEASE. Disease of the anatomic duct from the liver, which joins the duct from the gall bladder to form the common bile duct before entering the small intestine.

BILIARY SYSTEM/BILE DUCTS. The gall bladder and the system of tubes that carry bile from the liver into the intestines.

BILIRUBIN. A yellow pigment that is the end result of hemoglobin degradation. Bilirubin is cleared from the blood by action of liver enzymes and excreted from the body.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

BINGE EATING. A pattern of eating marked by episodes of rapid consumption of large amounts of food, usually food that is high in calories.

BIOACCUMULATION. The buildup of a toxin or other substance within a food chain, as larger predators retain the substance from the bodies of prey they eat.

BIOAVAILABILITY. The rate and extent to which a drug or other substance enters the general circulation.

BIOCIDE. Any chemical that works to kill microorganisms and other forms of life by poisoning. Hospital disinfectants are examples of biocides.

BIODEGRADABLE. Capable of being broken down by the actions of living organisms. Inulin from chicory roots can be used to produce biodegradable substances used in industry.

BIODIVERSITY. The presence of many different species of plants and animals within a limited geographical region.

BIOENERGETICS. A system of therapy that combines breathing and body exercises, psychological therapy, and the free expression of emotions to release blocked physical and psychic energy.

BIOFEEDBACK. The use of monitoring devices that display information about body functions, such as heart rate or blood pressure, to help patients learn to consciously control the functions.

BIOFIELD THERAPIES. A subgroup of energy therapies that make use of energy fields (biofields) thought to exist within or emanate from the human body. Biofield therapies include such approaches as aura therapy, Reiki, therapeutic touch, qigong, and polarity balancing.

BIOFLAVONOID. A large group of phytochemicals with antioxidant and immune-boosting properties.

BIOIDENTICAL. Molecules that are identical in chemical formulae and similar or identical in chemical structures, actions, and effects to naturally occurring biological molecules.

BIOPSY. The surgical removal and microscopic examination of living tissue for diagnostic purposes.

BIOSYNTHESIS. A process that produces chemical compounds from simpler components.

BIOTERRORISM. The intentional use of disease-causing microbes or other biologic agents to intimidate or terrorize a civilian population for political or military reasons. Type A influenza virus could be used as an agent of bioterrorism.

BIOTIN. The B complex vitamin found naturally in yeast, liver, and egg yolks.

BIPHOSPHONATES. Compounds (such as alendronate) that slow bone loss and increase bone density.

BISMUTH. A metallic element used to make medications that soothe the stomach lining. Bismuth appears to have some antimicrobial effectiveness against *Helicobacter pylori.*

BITTER. Any herb whose bitter taste stimulates the digestive system. Bitters are used to treat stomach ailments.

BLACKHEAD. A plug of fatty cells capped with a blackened mass.

BLADDER NECK. The place where the urethra and bladder join.

BLADDER SPHINCTER. The outlet that releases urine into the urethra.

BLASTOCYST. A cluster of cells representing multiple cell divisions that have occurred in the fallopian tube after successful fertilization of an ovum by a sperm. This is the developmental form that must enter the uterus and implant to achieve pregnancy.

BLEPHARITIS. A condition where the eyelids become red, irritated, and scaly. The eyes are painful, red, and inflamed.

BLOCKING PROTEIN FACTOR (BPF). A serum component that may prevent the immune system from recognizing cancer cells.

BLOOD CHEMISTRY PANEL. A general set of tests measuring substances in the blood that may indicate common diseases.

BLOOD CULTURE. A test used to find and identify infectious organisms in the blood. Blood drawn from the patient is placed in a culture medium and the sample is observed for the growth of bacteria. If bacteria grow, they are analyzed for identification.

BLOOD PRESSURE. The force applied to the walls of the arteries as the heart pumps blood through the body.

BLOOD-BRAIN BARRIER. A membrane that lines the blood vessels in the brain and prevents many damaging substances from reaching the brain. Certain small molecules are able to cross the barrier, including water, oxygen, carbon dioxide, and alcohol.

BLOOD. In TCM, it is the fluid that transports physical and emotional nourishment.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

BLUNTED AFFECT. A term that refers to the loss of emotional expressiveness sometimes found in patients with schizophrenia. It is sometimes called flattened affect.

BODHISATTVA. A Buddhist holy person who has attained enlightenment, but postpones nirvana in order to help others become enlightened.

BODY MASS INDEX (BMI). A measurement of fatness that compares height to weight.

BODY DYSMORPHIC DISORDER. A psychiatric disorder marked by preoccupation with an imagined physical defect.

BODYWORK. A term that covers a variety of therapies that include massage, realignment of the body, and similar techniques to treat deeply ingrained stresses and traumas carried in the tissues of the body.

BONE MARROW SUPPRESSION. Decrease in production of blood components, including red blood cells, white blood cells, and platelets. This can result in anemia, increased susceptibility to infections, and excessive bleeding.

BONE MARROW. A spongy tissue located in the hollow centers of certain bones, such as the skull and hip bones. Bone marrow is the site of blood cell generation.

BONE MARROW TRANSPLANTATION. A medical procedure in which normal bone marrow is transferred from a healthy donor to an ailing recipient. An illness that prevents production of normal blood cells—such as sickle cell anemia—may be treated with a bone marrow transplant.

BONE SCAN. A diagnostic procedure in which radioactive tracer is injected and images are taken of specific areas or the entire skeleton.

BOUCHARD'S NODES. Swelling of the middle joint of the finger.

BOWEL ASTRINGENT. A substance that causes bowel tissue to dry and shrink by reducing its ability to absorb water.

BOWEL OBSTRUCTION. A blockage in the intestine that prevents the normal flow of waste down the length of the intestine.

BRADYKINESIA. Slow movement.

BRAHMI. A herb used in Ayurvedic and Japanese medicine that is believed to improve a person's ability to remember new information. Brahmi is also called bacopa.

BRAXTON HICKS CONTRACTIONS. Short, fairly painless uterine contractions during pregnancy that may be mistaken for labor pains. They allow the uterus to grow and help circulate blood through the uterine blood vessels.

BROMELAIN. One or more enzymes found in pineapples and sometimes added to supplements to boost their effectiveness.

BROMHIDROSIS. A medical condition in which a person's sweat always smells unpleasant.

BRONCHIAL TUBES. The major airways from the back of the throat to the lungs and their main branches.

BRONCHIA. Air passages in the lungs. Wheezing occurs when bronchia become constricted (narrowed).

BRONCHIOLES. Small tubes in the lungs leading to the alveoli, where gas exchange occurs.

BRONCHITIS. An infection in the lungs.

BRONCHODILATOR. A medicine that relaxes the bronchial muscles and opens up the air passages to the lungs.

BRONCHOSCOPE. A thin, flexible, lighted tube that is used to view the air passages in the lungs.

BRONCHOSCOPY. A procedure in which a thin, flexible, lighted tube that is threaded through the airways to view the air passages in the lungs.

BRUXISM. Habitual clenching and grinding of the teeth, especially during sleep.

BUDDHISM. A philosophy founded in India in the sixth century B.C. and based on the teachings of the historical Buddha, born Siddartha Gautama.

BULBAR MUSCLES. Muscles of the mouth and throat responsible for speech and swallowing.

BULIMIA NERVOSA. An eating disorder characterized by episodic binge eating followed by self-induced vomiting or laxative abuse.

BUPLEURUM. An Asian plant used in traditional Chinese and Japanese medicines to treat infected or inflamed skin.

BURNOUT. An emotional condition, marked by tiredness, loss of interest, or frustration, that interferes with job performance. Burnout is usually regarded as the result of prolonged stress.

BURSA. A sac that contains synovial fluid and cushions the joints. Pl.: Bursae

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

BURSITIS. An inflammation of the tissue sac, called a bursa, which surrounds and helps lubricate the joints.

BUTTERFLY BANDAGE. A narrow strip of adhesive with wider flaring ends (shaped like butterfly wings) used to hold the edges of a wound together while it heals.

C

C-REACTIVE PROTEIN (CRP). A protein present in blood serum in various abnormal states, like inflammation.

CD4. A type of protein molecule in human blood. The HIV virus infects cells with CD4 surface proteins and, as a result, depletes the number of T cells, B cells, natural killer cells, and monocytes in the patient's blood.

CT (COMPUTER TOMOGRAPHY) SCAN. The diagnostic technique in which the combined use of a computer and x rays passed through the body at different angles produces clear, cross-sectional images *(slices)* of the tissue being examined.

CACHEXIA. General physical wasting and malnutrition, usually associated with such chronic diseases as cancer and AIDS.

CADMIUM. A heavy metal.

CADUCEUS. The ancient and universal symbol of medicine consisting of the winged staff of Mercury and two intertwining serpents.

CALCITONIN. A naturally occurring hormone made by the thyroid gland that can be used as a drug to treat osteoporosis and Paget's disease of the bone.

CALCIUM. A mineral necessary for strong bones and proper functioning of organs and muscles.

CALCIUM CARBONATE. A salt that is used in many antacids.

CALCIUM CHANNEL BLOCKER. A drug that blocks the entry of calcium into the muscle cells of small blood vessels (arterioles) and keeps them from narrowing.

CALCIUM CITRATE. A chemical compound made from calcium and citric acid.

CALCULI (SINGULAR, CALCULUS). Mineral deposits that can form a blockage in the urinary system.

CALORIC TESTING. Flushing warm and cold water into the ear stimulates the labyrinth and causes vertigo and nystagmus (involuntary movement of the eyes in a horizontal direction) if all the nerve pathways are intact.

CAMELLIA SINENSIS. Tea plant or tea tree from which black, oolong, green, and white tea are made.

CAMPYLOBACTER. A bacterium that can invade the lining of the intestine.

CANCER. A disease caused by uncontrolled abnormal cell growth.

CANDIDIASIS. Overgrowth of candida yeast in the body which may cause a variety of symptoms.

CANTHARIDIN. The irritating poison produced by Spanish fly that serves as the active ingredient in cantharis. Because of cantharidin, high doses of cantharis are highly toxic.

CAPACITOR PLATES. An apparatus that can carry electricity and stores an electrical charge.

CAPSAICIN. A crystalline, bitter compound found in peppers. It may be helpful in treating some forms of gastritis.

CARBOHYDRATES. Neutral compounds of carbon, hydrogen, and oxygen found in sugar, starches, and cellulose.

CARBUNCLE. A Staphylococcal skin infection that affects the hair follicles. The term may also be used to refer to a group of boils.

CARCINOGENESIS. Production of cancer.

CARCINOGENS. Chemical substances that cause cell mutations and, ultimately, cancer.

CARDIAC ARRYTHMIA. The irregular beating of the heart.

CARDIAC CATHETERIZATION. A treatment using a narrow tube to clear out a blocked blood vessel.

CARDIAC GLYCOSIDE. A chemical compound, often derived from a plant, consisting of a sugar joined to another chemical group, with biological effects on the heart; drugs that block the enzyme that regulates the electrical activity of the heart.

CARDIAC TONIC. Any of a diverse group of remedies intended to relieve heart symptoms. Most tonics contain herbal extracts, vitamins, and minerals.

CARDIOMYOPATHY. A condition of damaged, diseased, thickened, or stretched heart muscle, resulting in weakness of the heart. Cardiomyopathy often occurs following heart attacks due to scarring, but may also have an infectious or nutritional origin.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

CARDIOVASCULAR. Refers to the heart and blood vessels as a unified system.

CARIES. Cavities in the teeth.

CARMINATIVE. A substance or medication that causes gas to be expelled from the stomach and intestines.

CARNOSOL. An antioxidant compound found in rosemary that appears to have anticancer properties.

CAROTENOIDS. Any of a group of more than 600 orange or red substances that are found primarily in vegetables, many of which are vitamin A precursors.

CAROTENOSIS (CAROTENODERMIA, CAROTENEMIA). A yellowish pigmentation of the skin caused by high levels of carotene in the blood.

CARPAL TUNNEL SYNDROME. A condition caused by compression of the median nerve (from overuse) in the carpal tunnel of the hand, characterized by pain.

CARRIER OIL. An oil used to dilute essential oils for use in massage and other skin care applications.

CARTILAGE. A firm, whitish elastic connective tissue found in humans and other animals.

CARVONE. The chemical compound that gives spearmint its characteristic flavor. Carvone is a pale yellow or colorless liquid when extracted from the plant.

CATACHIN. A flavonoid found in fo ti that has antioxidant and tumor-inhibiting qualities.

CATALYST. A substance that increases the rate of a chemical reaction without undergoing change itself.

CATAPLEXY. A symptom of narcolepsy in which there is a sudden episode of muscle weakness triggered by emotions. The muscle weakness may cause the person's knees to buckle or the head to drop. In severe cases, the patient may become paralyzed for a few seconds

CATARACTS. Eye condition in which the lenses harden and lose their clarity.

CATARRH. Inflammation of a mucous membrane, particularly in the respiratory system, that produces excessive secretions.

CATATONIA. Disturbance of motor behavior with either extreme stupor or random, purposeless activity.

CATECHIN. A yellow, slightly bitter antioxidant found in evening primrose oil. Catechin appears to slow tumor growth and to protect against heart disease.

CATECHOL-O-METHYLTRANSFERASE (COMT) INHIBITORS. Drugs, such as entacapone and tolcapone, that block COMT, an enzyme that breaks down levodopa in the blood.

CATHARSIS. Therapeutic discharge of emotional tension by recalling past events.

CATHARTIC. Capable of reducing or relieving constipation.

CATHETER. A rubber or plastic tube placed through the urethra into the bladder to remove excess urine when the flow of urine is cut off or to prevent urinary infection.

CATHETERIZE. A procedure whereby a thin tube, called a catheter, is inserted into the urethra to collect urine, which drains into an external collection bag.

CAUDA EQUINA. The nerve roots in the final portion of the spine, controlling movement and sensation in the legs. These nerve roots resemble a horse's tail.

CAULOSAPONIN. The chemical compound found in blue cohosh that is used to stimulate uterine contractions during labor. It can have toxic side effects in humans.

CAUSTIC. Corrosive; capable of destroying by chemical action.

CAUTERIZATION. Sealing tissue or blood vessels by burning with a heat source or electrical current.

CAUTERIZE. To damage with heat or cold so that tissues shrink; used as a method to stop bleeding.

CAUTERY INSTRUMENT. A device that applies heat to the tissues to destroy damaged or diseased areas.

CAVITY. A hole or weak spot in the tooth surface caused by decay.

CELIAC DISEASE. An intestinal disorder characterized by intolerance of gluten, a protein present in the grains of wheat, rye, oats, and barley.

CELLULOSE. A material derived from the cell walls of certain plants. It is used in the production of many vegetable fibers and is a major raw material component in the production of manufactured fibers including acetate, rayon, and triacetate.

CENTRAL NERVOUS SYSTEM. Consisting of the brain and spinal cord, with their nerves and end organs that control voluntary acts; includes sensory and motor nerve fibers controlling skeletal muscles.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

CENTRIFUGE. A machine that rotates rapidly and uses centrifugal force to separate substances of different densities.

CEPHAELINE. A chemical compound found in ipecac that irritates the stomach lining and triggers the vomiting reflex.

CEPHALALGIA. The medical term for headache.

CEREBROSPINAL FLUID. Clear fluid found around the brain and spinal cord and in the ventricles of the brain.

CERVICAL. Relating to the top part of the spine that is composed of the seven vertebrae of the neck and the disks that separate them.

CERVIX. The opening from the vagina leading into the uterus.

CESTODES. Tapeworms, which are long, flat, segmented parasitic intestinal worms.

CHAKRAS. The energy centers located at points along the body, usually identified as seven in number in yoga and other Eastern healing therapies. Stone massage works to open the chakras, as well as relax the physical body.

CHALAZION. A small cyst on the eyelid that develops because the Meibomian gland becomes plugged.

CHANCRE. The initial skin ulcer of primary syphilis, consisting of an open sore with a firm or hard base.

CHARANTIN. A compound with hypoglycemic effects that can be extracted from bitter melon with alcohol.

CHARCOT-MARIE-TOOTH SYNDROME (CMT). The most common form of inherited peripheral neuropathy.

CHELATE. A chemical compound in which a metal is bonded to one or more organic groups.

CHELATION. The use of a medication or herbal substances to inactivate toxic substances in the body. Chelation is used to treat iron overload in some patients.

CHELATION THERAPY. Treatment with chemicals that bind to a poisonous metal and help the body pass it in urine at a faster rate.

CHEMOPREVENTATIVE. A chemical or drug that is thought to prevent a disease.

CHEMOTHERAPEUTIC AGENT. A medication used to treat disease, usually cancer.

CHEMOTHERAPY. Chemical (drug) treatment of disease; in cancer treatment, the use of synthetic drugs to destroy a tumor either by inhibiting the growth of the cancerous cells or by killing the cancer cells.

CHI (QI OR KI). The universal life-force or energy. The quality, quantity, and balance of a person's chi determines his or her state of health and longevity.

CHILBLAIN. Redness and swelling of the skin often accompanied by burning, itching, and blisters. A condition caused by excessive exposure to the cold.

CHIROPRACTIC. A method of treatment based on the interactions of the spine and the nervous system. Chiropractors adjust or manipulate segments of the patient's spinal column in order to relieve pain and increase the healthy flow of nerve energy.

CHITIN. A transparent horny substance found in the outer coverings of shellfish. Chitin is used to make commercial preparations of glucosamine.

CHLAMYDIA. The most common bacterial sexually transmitted disease in the United States.

CHLOASMA. A skin discoloration common during pregnancy, also known as the mask of pregnancy or melasma, with which blotches of pale brown skin appear on the face. The blotches may appear in the forehead, cheeks, and nose, and may merge into one dark mask.

CHLOROPHYLL. A green plant pigment found in plants, algae, and some bacteria. Chlorophyll is responsible for capturing the light energy needed for photosynthesis.

CHLOROQUINE. An antimalarial drug that was first used in the 1940s, until the first evidence of quinine resistance appeared in the 1960s. It is now ineffective against falciparum malaria almost everywhere.

CHOLAGOGUE. Stimulates the flow of bile from the liver to the intestines.

CHOLECYSTECTOMY. Surgical removal of the gallbladder.

CHOLESTEROL. A steroid fat found in food derived from animals that is also produced in the body for several important functions. Excess cholesterol intake is linked to many diseases.

CHOLESTEROL ABSORPTION INHIBITOR. A substance that decreases the absorption of cholesterol in the intestines.

CHOLINE. Choline is a nutrient required by the body. It does not meet the classic definition of a

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

vitamin because the body makes some choline but not enough to support health. The remainder must be acquired through diet.

CHONDROITIN. A complex carbohydrate found in human and animal cartilage that is used to treat several physical disorders, most importantly arthritis.

CHOREA. A nervous system disorder that causes involuntary jerking or spasms. Also known as St. Vitus dance.

CHOROIDAL NEOVASCULARIZATION (CNV). The proliferation of new, fragile blood vessels in the choroid layer. Leakage from these vessels causes wet AMD.

CHOROID. The middle vascular layer of the eyeball, behind the retina.

CHRONIC DISEASE. An illness or medical condition that lasts over a long period of time and sometimes causes a long-term change in the body.

CHVOSTEK'S SIGN. A facial spasm caused when a doctor taps lightly on a patient's facial nerve. A positive Chvostek's sign may indicate that the patient has hypomagnesemia.

CIALIS. Trade name for tadalafil, an oral medication for the treatment of impotence.

CILIA. Tiny, hair-like projections from a cell. Within the respiratory tract, the cilia act to move mucus along, in an effort to continually flush out and clean the respiratory tract.

CIRCADIAN RHYTHM. The approximately 24-hour period, also known as the body's time clock, that regulates waking and sleeping periods.

CIRRHOSIS. The end result of many forms of liver disease, the condition of the liver when its cells have been damaged or destroyed and are replaced by scar tissue.

CITRAL. A pale yellow liquid drived from lemongrass used in making perfumes and to flavor food.

CLAIRVOYANT. A person who has the power to see within their mind a future event or an event or thing out of their visual range.

CLEFT PALATE. A birth defect characterized by a deep split in the roof of the mouth, associated with folic acid deficiency.

CLINDAMYCIN. An antibiotic that can be used instead of penicillin.

CLINICAL NUTRITION. The use of diet and nutritional supplements as a way to enhance health and prevent disease.

CLOSE WORK. Tasks which cause the eyes to focus on something close at hand, such as reading, writing, computer work, and sewing.

CLOSTRIDIUM DIFFICILE. A species of bacteria of the genus *Clostridium* that causes diarrhea associated with antibiotic use.

CLOSTRIDIUM. A genus of deadly bacteria that are responsible for tetanus and other serious diseases, including botulism and gangrene from war wounds. It thrives without oxygen.

COBB ANGLE. A measure of the curvature of scoliosis, determined by measurements made on x rays.

COCHLEA. The hearing part of the inner ear. This snail-shaped structure contains fluid and thousands of microscopic hair cells tuned to various frequencies, in addition to the organ of Corti (the receptor for hearing).

COENZYME Q_{10}. A substance used by cells in the human body to produce energy for cell maintenance and growth. It is being studied as a possible preventive for migraine headaches.

COENZYME. A substance needed by enzymes to produce many of the reactions in energy and protein metabolism in the body.

COGNITIVE RESTRUCTURING. A technique used in cognitive-behavioral therapy. The process of replacing maladaptive thought patterns with constructive thoughts and beliefs.

COGNITIVE-BEHAVIOR THERAPY. A form of psychotherapy that seeks to modify behavior by manipulating the environment to change the patient's response.

COLCHICINE. A drug used to treat painful flare-ups of gout.

COLD-DEFICIENCY DIARRHEA. In Chinese herbal medicine, this condition is described as cold settling in the abdomen when resistance is low, causing cramping, gas, and loose stools.

COLD. In Chinese pathology, the term defines a condition that has insufficient warmth, either objective (hypothermia) or subjective (feeling cold).

COLITIS. An inflammation of the colon.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

COLLAGEN. A white, fibrous protein that is found in skin, bones, ligaments, tendons, cartilage, and all other connective tissue.

COLLARETTE. The slightly raised area of scaly skin that forms at the borders of the herald patch and later lesions of pityriasis rosea.

COLLATERAL SUPERFICIAL VEINS. Veins that are readily visible and stick up from the skin surface.

COLONIZE. To become established in a host.

COLON. Large intestine; the lower part of the digestive system that is primarily responsible for conserving water by absorbing it from the bowel contents.

COLONOSCOPY. Examination of an area of the gastrointestinal tract by putting a lighted scope, usually bearing a fiber-optic camera, into the rectum and passing it through the intestine.

COLOSTOMY. A procedure performed when a large quantity of intestine is removed. The end piece of the intestine leading to the rectum is closed.

COLTSFOOT. A common weed, *Russilago farfara*, used to treat chest complaints.

COMEDO. A hard plug composed of sebum and dead skin cells.

COMMENSAL BACTERIA. Bacteria that live in or on the human body and are in an often beneficial relationship with the human host. For example, some bacteria in the digestive tract produce needed B vitamins.

COMMISSION E. A committee formed in Germany in 1978 to evaluate the efficacy and safety of herbs used in traditional medical practice.

COMMON BILE DUCT. The passage through which bile travels from the cystic duct to the small intestine.

COMMON COLD. An illness caused by an upper respiratory viruses. Usual symptoms include nasal congestion, coughing, sneezing, throat irritation, and a low-grade fever.

COMPENSATED CIRRHOSIS. Asymptomatic cirrhosis of the liver.

COMPLEMENT. A large group of serum proteins that are involved in the immune response.

COMPLEMENTARY MEDICINE. Various treatments used in alternative medicine that are used specifically to supplement conventional drug and therapy treatments, rather than to replace conventional medicine.

COMPLEMENTARY THERAPY. Includes many of the same treatments used in alternative medicine, such as herbal medicine, massage, and focused imaging, but uses them to supplement conventional drug and therapy treatments, rather than to replace conventional medicine.

COMPLETE COLECTOMY. The surgical removal of all four parts of the colon.

COMPLETE PROTEIN. A protein food that has all the essential amino acids the body requires to digest it.

COMPLEX CARBOHYDRATES. Complex carbohydrates are broken down by the body into simple sugars for energy, are found in grains, fruits and vegetables. They are generally recommended in the diet over refined sugar and honey, because they are a more steady source of energy.

COMPLEX SUGARS. A category of carbohydrate compounds within plants, found to have antiviral and anti-inflammatory effects; they have a more complex structure than the sweet, simple dietary sugars.

COMPOUNDING PHARMACY. A pharmacy that uses bulk materials to fill prescriptions according to a physician's formulation; a formulating pharmacy.

COMPRESS. A cloth used to apply heat, cold, or medications to the skin.

COMPULSION. A rigid behavior that is repeated over and over each day.

COMPUTED TOMOGRAPHY (CT) SCAN. An imaging technique in which cross-sectional x rays of the body are compiled to create a three-dimensional image of the body's internal structures.

CONDITIONING. In psychology, the process of acquiring, developing, or establishing new associations and responses in a person or animal.

CONDUCT DISORDER. A behavioral and emotional disorder of childhood and adolescence. Children with a conduct disorder act inappropriately, infringe on the rights of others, and violate societal norms.

CONDUCTIVE HEARING LOSS. Hearing loss caused by loss of function in the external or middle ear.

CONDYLOMA ACUMINATA (PLURAL, CONDYLOMATA). The medical term for warts in the genital region or anus.

CONDYLOMATA LATA. Highly infectious patches of weepy pink or gray skin that appear in the moist areas of the body during secondary syphilis.

CONES. Receptor cells, located in the retina of the eye, that allow the perception of colors.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

CONGENITAL. Existing at or before birth; a condition that developed while the fetus was in utero or as a consequence of the birth process.

CONGESTIVE HEART FAILURE. A condition in which the heart is too weak to maintain an adequate supply of blood to the tissues of the body.

CONIFER. Any of several families of trees and shrubs, mostly evergreen, belonging to the order Coniferales, distinguished by bearing seeds and pollen in the form of dry scales arranged in a cone.

CONIZATION. Surgical removal of a cone–shaped piece of tissue from the cervix.

CONJUNCTIVITIS. Inflammation of the conjunctiva, the mucous membrane surrounding the eye. Also known as pinkeye.

CONNECTIVE TISSUE. Tissue that supports and binds other body tissue and parts.

CONSOLIDATION. A condition in which lung tissue becomes firm and solid rather than elastic and air-filled because it has accumulated fluids and tissue debris.

CONSTIPATION. Difficulty passing stools, infrequent stools, or insufficient stools.

CONSTITUTIONAL. Involving the whole body. A constitutional symptom, for example, is one that is not focused entirely in the diseased organ system, but affects the whole system (such as fever).

CONSTITUTIONAL PRESCRIBING. Homeopathic treatment based on a total assessment of the person's life history, heredity, lifestyle, and present environment, as distinct from prescribing based on immediate acute symptoms.

CONTACT DERMATITIS. Inflammation, redness, and irritation of the skin caused by an irritating substance.

CONTAMINATED. Unclean or infected by contact with or the addition of something.

CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP). A ventilation device that blows a gentle stream of air into the nose during sleep to keep the airway open.

CONTRACT. To squeeze down, become smaller.

CONTRACTURE. Shortening of a muscle caused by an imbalance of force between opposing muscles.

COPROLALIA. The involuntary use of vulgar or obscene language.

CORM. A small, underground bulb or stem that holds food for the development of a young plants.

CORNEA. The clear, bowl-shaped structure at the front of the eye located in front of the colored part of the eye. The cornea lets light into the eye and partially focuses it.

CORONARY ARTERIES. The main arteries that provide blood to the heart. The coronary arteries surround the heart like a crown, coming out of the aorta, arching down over the top of the heart, and dividing into two branches.

CORONARY ARTERY DISEASE. A narrowing or blockage, due to atherosclerosis, of the arteries that provide oxygen and nutrients to the heart. When blood flow is cut off, the result is a heart attack.

CORONAVIRUS. One of a family of RNA-containing viruses known to cause severe respiratory illnesses. In March 2003, a previously unknown coronavirus was identified as the causative agent of severe acute respiratory syndrome (SARS).

CORPUS CAVERNOSUM (PLURAL, CORPORA CAVERNOSA). One of two rods of spongy tissue in the penis that become engorged with blood in order to produce an erection.

CORPUS STRIATUM. Regions on each side of the brain that transmit signals for movement in response to dopamine from the substantia nigra.

CORTICAL. Regarding the cortex, or the outer layer of the brain, as distinguished from the inner portion.

CORTICOSTEROID. A group of synthetic hormones that are used to prevent or reduce inflammation. Toxic effects may result from rapid withdrawal after prolonged use or from continued use of large doses.

CORTISOL. Also known as the "stress hormone," cortisol is produced by the body during stress. Excess levels of cortisol can lead to a variety of health-related issues.

CORTISONE. A drug used in the treatment of rheumatoid arthritis.

CORYDALINE. An alkaloid derived from corydalis that has some effectiveness as a pain reliever.

COSMIC RADIATION. Radiation of high penetrating power originating in outer space. It consists partly of high-energy atomic nuclei.

COTYLEDON. A seed leaf, from the embryo of a seed plant.

COUMARINS. These blood-thinning plant chemicals break down red blood cells. Coumarins are

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

responsible for the fresh- mown lawn aroma that some herbs exude.

CRABS. An informal term for pubic lice.

CREATININE. One of the waste substances normally excreted by the kidneys into the urine. When urine flow is slowed, creatinine may collect in the blood and cause toxic effects.

CREEPING ERUPTION. Itchy irregular, wandering red lines on the skin made by burrowing larvae of the hookworm family and some roundworms. Also called cutaneous larva migrans.

CRETINISM. Severe hypothyroidism that is present at birth.

CRIGLER-NAJJAR SYNDROME. A moderate to severe form of hereditary jaundice.

CROCETIN. A reddish-yellow plant pigment found in saffron that has been studied for its anticancer effectiveness.

CROHN'S DISEASE. An inflammatory small intestine disease named after the gastroenterologist, Burrill B. Crohn, characterized by symptoms of cramping, especially after meals, and chronic diarrhea of loose, liquid, frequent stools.

CROSS LATERALIZATION. A term used to describe what was believed to be a difference in the way the mind works in persons with and without dyslexia.

CROWN. The part of a tooth that is covered by enamel.

CRUCIFER. A type of vegetable that is now believed to guard against cancer, ulcers, and infections in the digestive tract. Examples of crucifers include wasabi, broccoli, cauliflower, mustard greens, and cabbage.

CRYOGENICS. A science examining the freezing of living tissue for preservation and use at a later time.

CRYOTHERAPY. A technique of removing warts by freezing with liquid nitrogen.

CUCURMIN (SOMETIMES SPELLED CURCUMIN). A yellow material that gives turmeric root its characteristic color.

CULTURE. A laboratory test in which colonies of microorganisms are grown from tissue samples of an infected individual in order to identify the pathogen.

CULTURE TEST. A laboratory test to grow samples of an infecting organism from discharge or samples of affected tissue.

CULTURING. Growing cells in a special substance, or media, in the laboratory.

CUMULATIVE. Increasing in effects or quantity by successive additions.

CUPPING. A type of percussion stroke in which the massage therapist strikes or thumps the muscles with cupped hands.

CURETTAGE. The removal of tissue or growths by scraping with a curette.

CUSHING'S SYNDROME. A disorder in which too much of the adrenal hormone, cortisol, is produced; caused perhaps by a pituitary or adrenal gland tumor.

CUT. Separation of skin or other tissue made by a sharp edge, producing regular edges.

CYANOSIS. A bluish tinge to the skin that can occur when the blood oxygen level drops too low.

CYCLOSPORIN. A drug that suppresses the immune system and has been used to treat severe psoriasis. Some research indicates that cyclosporin may increase the risk of skin cancer for psoriasis patients.

CYME. A flower cluster whose main branch ends in a flower that blooms before the others at its side or base.

CYSTIC FIBROSIS. A genetic disease that causes multiple digestive, excretory, and respiratory complications. Among the effects, the pancreas fails to provide secretions needed for the digestion of food.

CYSTINURIA. Excess cystine, lysine, arginine, and ornithine in urine due to defective transport system of these acids in kidney and intestines.

CYSTITIS. Painful inflammation of the urinary bladder caused by infection, irritation, allergy, or other causes.

CYSTOSCOPE. An instrument used to view and introduce treatments into the urinary tract.

CYSTOSCOPY. A procedure for examination of the interior of the bladder using an instrument introduced through the urethra into the bladder.

CYTOCHROME. A substance that contains iron and acts as a hydrogen carrier for the eventual release of energy in aerobic respiration.

CYTOKINES. Chemicals made by the cells that act on other cells to stimulate or inhibit their function. Cytokines that stimulate growth are called growth factors.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

CYTOSTATIC. Suppressing the growth and multiplication of cells.

CYTOTOXIC. An agent that destroys the cells of a specific organ. Anticancer agents are cytotoxic.

D

DNA. Deoxyribonucleic acid. The chemical of chromosomes and hence the vehicle of heredity.

DSM-IV. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV). This reference book, published by the American Psychiatric Association, is the diagnostic standard for most mental health professionals in the United States.

DTP. Diphtheria, tetanus, and whole-cell pertussis vaccine; no longer used in the United States.

DTAP. Diphtheria and tetanus toxoids and acellular Pertussis combination vaccine.

DAIDZEIN. An isoflavone contained in kudzu that appears to be useful in treating alcoholism.

DAILY VALUE (DV). The percentage of the RDA of a nutrient that is present in a food or supplement.

DAOISM. Also called Taoism, Dao means "the way." Daoism is a holistic spiritual philosophy of the universe that is based on the idea that all elements in the universe are interactive and interdependent with each other.

DARKFIELD. A technique of microscopic examination in which light is directed at an oblique angle through the slide so that organisms look bright against a dark background.

DAWN SIMULATION. A form of light therapy in which the patient is exposed while asleep to gradually brightening white light over a period of an hour and a half.

DE-BLOCKING PROTEIN FACTOR (DPF). A serum component used in IAT that is claimed to inactivate or remove BPF.

DE-GAS. To release and vent gases. New building materials often give off gases and odors and the air should be well circulated to remove them.

DEBRIDE. To surgically remove dead tissue. Noun: Debridement

DECIBEL. A unit of the intensity of sound, a measure of loudness.

DECIDUOUS. A tree or bush that sheds its leaves seasonally.

DECILITER. A fluid measurement that is equal to one-tenth of a liter, or 100 cubic centimeters (27 fluid drams or teaspoonfuls).

DECOCTION. A herbal extract produced by mixing an herb with cold water, bringing the mixture to a boil, and letting it simmer to evaporate the excess water. Decoctions are usually chosen over infusion when the botanical or herb in question is a root, seed, or berry.

DECONGESTANT. A drug that relieves nasal congestion.

DEFECATION. Passage of feces through the anus.

DEFINITIVE HOST. The host organism for the final (adult) stage in the life cycle of a parasite.

DEGENERATIVE DISEASES. A group of diseases characterized by progressive degenerative changes in tissue, including arteriosclerosis, diabetes mellitus, and osteoarthritis.

DEHYDRATION. A condition in which the body lacks the normal level of fluids, potentially impairing normal body functions.

DEHYDROEPIANDROSTERONE (DHEA). A hormone produced by the adrenal glands that is important in the synthesis of other hormones, especially estrogen and testosterone.

DELIRIUM TREMENS. A potentially fatal withdrawal syndrome in persons who have become physically dependent on alcohol or other drugs, characterized by shaking, sweating, hallucinations, nausea, and agitation.

DELUSION. A false belief that is resistant to reason or contrary to actual fact. Common delusions in schizophrenia include delusions of persecution, or delusions about one's importance (sometimes called delusions of grandeur).

DEMENTIA PRAECOX. A late nineteenth-century term for schizophrenia.

DEMENTIA. Irreversible mental deterioration.

DEMINERALIZATION. A loss or decrease of minerals in the bones.

DEMULCENT. A substance or agent used to soothe irritated mucous membranes.

DENATURED. Food that has been processed and is no longer of benefit to the body.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

DENDRITES. Branching projections that grow out of a nerve cell.

DENTAL CARIES. A disease of the teeth in which microorganisms convert sugar in the mouth to acid, which then erodes the tooth.

DENTINE. The hard major portion of a tooth below the enamel.

DEPENDENCE. A state in which a person requires a steady concentration of a particular substance in order to avoid experiencing withdrawal symptoms.

DEPRESSION. A psychological condition that is characterized by feelings of sadness, sleep disturbance, fatigue, and inability to concentrate.

DERMATITIS. A condition where the skin is red and inflamed, often accompanied by pain and itching.

DERMATITIS HERPETIFORMIS. A chronic, very itchy skin disease with groups of red lesions that leave spots behind when they heal. It is sometimes associated with cancer of an internal organ.

DERMATOLOGIST. A physician specializing in the branch of medicine concerned with skin.

DERMATOPHYTE. A type of fungus that is parasitic on skin and causes a skin disease.

DERMOID TUMOR. A skin-like benign growth that may appear on the ovary and resemble a cyst.

DERVISH. A member of the Sufi order. Their practice of meditation involves whirling ecstatic dance.

DESENSITIZATION. A treatment for phobias which involves exposing the phobic person to the feared situation. It is often used in conjunction with relaxation techniques. Also used to describe a technique of pain reduction in which the painful area is stimulated.

DETOXIFICATION. The process of eliminating or neutralizing toxins in the body, thereby enabling the body to heal itself and restore health.

DEVIATED SEPTUM. A hole or perforation in the septum, the wall that divides the two nasal cavities.

DIABETES MELLITUS. A degenerative disease characterized by inadequate production or absorption of insulin, excessive urine production, and excessive amounts of sugar in the blood and urine.

DIABETES. A disease in which the body either cannot produce adequate amounts of insulin (type 1) or properly metabolize the hormone (type 2).

DIABETIC COMA. A life-threatening, reduced level of consciousness that occurs in persons with uncontrolled diabetes mellitus.

DIABETIC KETOACIDOSIS. A potentially serious condition in which ketones become present in the blood stream because of the metabolism of fats *burned* in lieu of carbohydrates that would normally be used, which occurs due to insufficient insulin.

DIABETIC PERIPHERAL NEUROPATHY. Dulled sensitivity of nerves to pain, temperature, and pressure particularly in the legs and feet.

DIABETIC RETINOPATHY. The tiny blood vessels to the retina, the tissues that sense light at the back of the eye, are damaged, leading to blurred vision, sudden blindness, or black spots, lines, or flashing light in the field of vision.

DIAGENESIS. Changes that occur in sediment or a sedimentary rock after deposition.

DIAGNOSIS. Means of determining health problems and general condition in a patient.

DIAN XUE. The Chinese name for acupressure. This form of massage can be done at home as well as by a trained therapist.

DIAPHORETIC. A substance or medication given to induce or promote sweating.

DIAPHRAGM BREATHING. Method of deep breathing using the entire lungs.

DIASTOLIC BLOOD PRESSURE. Blood pressure when the heart is resting between beats.

DIAZINON. A member of the organophosphate family of pesticides. This chemical causes nerve and reproductive damage.

DIETARY SUPPLEMENT. A product, such as a vitamin, mineral, herb, amino acid, or enzyme, that is intended to be consumed in addition to an individual's diet with the expectation that it will improve health.

DIETITIAN. A health care professional who specializes in individual or group nutritional planning, public education in nutrition, or research in food science.

DIGESTION. The body's process of breaking down food, extracting energy and nutrients, and eliminating unusable components.

DIGESTIVE ENZYMES. Proteins that catalyze the breakdown of large molecules (usually food) into smaller molecules.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

DIGESTIVE TRACT. The long tubular structure that handles all digestion and the structures that connect to it, including the mouth, esophagus, stomach, and intestines.

DIGITALIS. A naturally occurring compound used in the preparation of the medication digoxin, prescribed to increase the heart rate and strengthen the force of the heart's contractions.

DIHYDROTESTOSTERONE (DHT). A testosterone metabolite implicated in the increase in size and number of prostatic cells.

DILATE. To expand in diameter and size.

DIMERCAPROL (BAL). A chemical agent used to remove excess lead from the body.

DIMMER. A molecule consisting of two identical simpler molecules.

DIOPTER (D). A unit of measure for describing the refractive power of a lens.

DIOSGENIN. A compound found in wild yam that has been used to make synthetic progesterone.

DIOXIN. A toxic chemical produced in the manufacture of some pesticides and herbicides.

DIOXYGENASE ENZYMES. Substances that accelerate the chemical reaction of oxygen molecules with an organic substrate.

DIPLEGIA. Paralysis of corresponding parts on both sides of the body.

DIRECT FLUORESCENT ANTIBODY TEST. A test in which a fluorescent dye is linked to an antibody for diagnostic purposes.

DIRECTION. Bringing about the free balance of the head on the spine and the resulting release of the erector muscles of the back and legs which establish improved coordination.

DIRTY BOMB. A bomb made with conventional explosives that also contains radioactive isotopes. When the bomb explodes, the radioactive material spreads contamination over a wide area.

DISACCHARIDE. A type of sugar that consists of two simpler (monosaccharide) sugars.

DISK. Dense tissue between the vertebrae that acts as a shock absorber and prevents damage to nerves and blood vessels along the spine.

DISSEMINATED. Scattered or distributed throughout the body.

DISSOCIATION. A reaction to trauma in which the mind splits off certain aspects of the traumatic event from conscious awareness. Dissociation can affect the patient's memory, sense of reality, and sense of identity.

DISSOCIATIVE AMNESIA. A disorder characterized by loss of memory for a period or periods of time in the patient's life.

DISTILLATE. The material obtained through the process of distilling (vaporized and condensed to separate out different compounds).

DISULFIRAM-LIKE POISON. Disulfiram is a chemical compound that causes a severe physiological reaction to alcohol. This poison behaves like disulfiram.

DISUSE ATROPHY. Condition of muscles that have lost size, strength, and function due to lack of mobility.

DITERPENE. An organic compound that contains only carbon and hydrogen arranged in a characteristic molecular structure; found commonly in plants and trees.

DIURETIC. A group of medications that increase the amount of urine produced and relieve excess fluid buildup in body tissues. Diuretics may be used in treating high blood pressure, lung disease, premenstrual syndrome, and other conditions.

DIURNAL. Events that happen in the daytime, daily; associated with circadian rhythms.

DIVINING. The act of locating an object using a special sense or instinct.

DOJO. A martial arts school.

DONEPEZIL. A drug commonly prescribed for Alzheimer's disease that provides temporary improvement in cognitive functions for some patients with mild-to-moderate forms of the disease.

DOPAMINE. A neurotransmitter that acts within certain brain cells to regulate movement and emotions.

DOPAMINE AGONIST (DA). A drug that binds to dopamine receptors on cell surfaces and mimics the effects of dopamine.

DOPAMINE RECEPTOR ANTAGONISTS (DAS). The older class of antipsychotic medications, also called neuroleptics. These primarily block the site on nerve cells that normally receives the brain chemical dopamine.

DORSAL RHIZOTOMY. A surgical procedure that cuts nerve roots to reduce spasticity in affected muscles.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

DORSAL ROOT ENTRY ZONE (DREZ). A type of nerve surgery for postherpetic neuralgia that is occasionally used when the patient can get no other pain relief. The surgery destroys the area where damaged nerves join the central nervous system, thereby interfering with inappropriate pain mes

DOSHA. One of the three physical constitution types (vata, pitta, and kapha) in Ayurvedic medicine.

DOUBLE-BLIND PLACEBO CONTROLLED STUDY. A study in which neither the patient nor the drug administrator knows who is receiving the trial drug and who the placebo.

DOUBLE-BLIND RANDOMIZED CONTROLLED TRIAL. A study that uses two groups of subjects. One group (experimental group) receives the treatment being tested, while the other group (control group) receives a placebo. Neither the subjects nor the researchers know which subjects are in which group.

DOULA. A woman who assists an expectant mother with physical and emotional support during labor.

DOWN SYNDROME. A genetic disorder caused by an extra human chromosome 21 (trisomy 21), characterized by mental retardation, muscular weakness, and folds over the patient's eyelids.

DRUSEN. Yellowish-white fatty deposits on the retina, including the macula.

DUODENUM. The first of the three segments of the small intestine that connects the stomach and the jejunum. Most peptic ulcers are in the duodenum.

DYANA. The yoga term for meditation.

DYSBIOSIS. The condition that results when the natural flora of the gut are thrown out of balance, such as when antibiotics are taken.

DYSGLYCEMIA. Disrupted glucose regulation resulting in periods of hypoglycemia, hyperglycemia, elevated insulin and insulin resistance.

DYSKINESIA. An abnormal involuntary movement or tic.

DYSLEXIA. A term applied to a kind of learning disability particularly noted for reversals and spatial shifts, making reading, writing, spelling and math very difficult.

DYSMENORRHEA. Painful menstruation.

DYSMOTILITY. Abnormally slow or fast rhythmic movement of the stomach or intestine.

DYSPEPSIA. Recurrent or persistent pain in the upper abdomen.

DYSSOMNIA. A primary sleep disorder in which the patient suffers from changes in the quantity, quality, or timing of sleep.

DYSTHEMIA. A state of chronic, mild depression.

DYSTONIA. Painful involuntary muscle cramps or spasms; one of the extrapyramidal side effects associated with antipsychotic medications.

DYSTONIC. Describes the condition dystonia, in which fine motor control is confused.

DYSURIA. Painful or difficult urination.

E

ECCHYMOSIS (PLURAL, ECCHYMOSES). The medical term for a bruise, or skin discoloration caused by blood seeping from broken capillaries under the skin.

ECCRINE. A type of gland that produces a clear watery secretion without releasing cells or cell contents into the secretion.

ECHINACEA. A popular herbal remedy used to treat colds, the flu, and urinary tract infections.

ECLECTICS. Nineteenth-century herbal scientists in the United States who founded the Reformed Medical School. Their outlook was based on herbal medicines of practitioners in Europe and Asia and uses by Native Indians.

ECTOPIC PREGNANCY. A pregnancy that occurs outside the uterus, often in the fallopian tubes. The fetus will not survive, and in some cases, the pregnancy can result in the death of the mother.

ECZEMA. General term for a group of acute or chronic inflammatory skin conditions characterized by redness, thickening, oozing, and the formation of papules, vesicles, and crusts.

EDEMA. Water retention in the body that often causes swelling of the hands and feet.

EDETATE CALCIUM DISODIUM (EDTA CALCIUM). A chemical agent used to remove excess lead from the body.

EFFERENT. Motor signals that go from brain and spinal cord out to the muscles of the body.

EFFICACY. The power to bring about intended results.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

EFFLEURAGE. A massage technique that involves light stroking with the palms or thumbs.

EFFUSION. A collection of fluid that has leaked out into some body cavity or tissue.

EICOSANOIDS. Hormone-like compounds thought to protect against cardiovascular disease.

EICOSAPENIAENOIC ACID. A type of acid derived from gamma-linoleic acid.

EJACULATORY INCOMPETENCE. Inability to ejaculate inside the vagina.

ELASTIN. A yellow fibrous protein that is the basic component of elastic connective tissue.

ELECAMPANE. A perennial herb with large yellow flowers used primarily as a digestive stimulant.

ELECTRICAL IMPEDANCE. This technique uses a small electrical current passing through the body. Fat impedes or slows down electrical current. The faster the current runs through the body, the less fat there is.

ELECTROCARDIOGRAPHY. A procedure for measuring heart activity.

ELECTROCAUTERY. A procedure in which heat from an electric current is used to perform surgical procedures.

ELECTRODESICCATION. To make dry, dull, or lifeless with the use of electrical current.

ELECTROLYTE. An ion, or weakly charged element, that conducts reactions and signals in the body. Examples of electrolytes are sodium and potassium ions.

ELECTROMAGNETIC ENERGY. Energy created by electromagnetism, the forces of electricity and magnetism.

ELECTROMYOGRAPHIC BIOFEEDBACK. A method for relieving jaw tightness by monitoring the patient's attempts to relax the muscle while the patient watches a gauge. The patient gradually learns to control the degree of muscle relaxation.

ELECTROMYOGRAPHY (EMG). A test in which a nerve's function is examined by stimulating the nerve with electricity and then measuring the speed and strength of the corresponding muscle's response.

ELECTRONYSTAGMOGRAPHY. A method for measuring the electricity generated by eye movements. Electrodes are placed on the skin around the eye and the individual is subjected to a variety of stimuli so that the quality of eye movements can be assessed.

ELECTRORETINOGRAM. An instrument for measuring electrical signals from a point in the macula.

ELEUTHEROSIDE. Active chemical found in Siberian ginseng.

ELIXIR. Similar to a liquid extract, sweetened, and with added aromatic principals, said to be one of the most common forms of liquid herbal medicines for oral consumption.

ELLAGIC ACID. A yellow crystalline compound derived from tannins and used to prevent bleeding. It is found in raspberries and is thought to help prevent cancer.

EMBOLI, EMBOLUS. Emboli is the plural form of embolus. Embolus refers to any mass of air, blood clot, or foreign body that travels through the bloodstream and is capable of lodging in smaller blood vessels where it can obstruct the blood flow to that vessel.

EMBOLISM. Obstruction or blockage in a blood vessel caused by an embolus.

EMBOLIZATION. A technique that shrinks fibroids by cutting off their blood supply.

EMBOLUS. A clot that forms in one place in the body and then travels and lodges elsewhere. Emboli is the plural of embolus.

EMBRYO. The result of fertilization of an egg by a sperm during the first eight weeks of development following conception. For the rest of pregnancy, the embryo is called a fetus.

EMESIS. An act or episode of vomiting.

EMETIC. A medication given to induce vomiting.

EMMENAGOGUE. An herb or medication that brings on a woman's menstrual period.

EMOLLIENT. A substance that softens and smoothes the skin.

EMPHYSEMA. An incurable, smoking-related disease, in which the air sacs at the end of the lung's bronchi become weak and inefficient. People with emphysema often first notice shortness of breath, repeated wheezing and coughing that brings up phlegm (mucus).

EMPYEMA. An infection that causes pus to accumulate in the pleural space which may cause a tear in the pleural membrane and allow the infection to spread to other areas in the body.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

EMULSIFICATION. The process by which two immiscible liquids are dispersed into each other.

ENAMEL. The hard outermost surface of a tooth.

ENCEPHALITIS. Inflammation of the brain, usually caused by a virus. The inflammation may interfere with normal brain function and may cause seizures, sleepiness, confusion, personality changes, weakness in one or more parts of the body, and even coma.

ENCEPHALOPATHY. Swelling and degeneration of the brain.

ENDARTERECTOMY. A procedure in which the diseased inner portions of an artery, including any deposits, are removed.

ENDEMIC. Belonging or native to a particular locality or people.

ENDOCARDITIS. Inflammation of the lining of the heart, and/or the heart valves, caused by infection.

ENDOCRINE GLAND. A ductless gland, such as the pituitary, thyroid, or adrenal gland, that secretes its products directly into the blood or lymph.

ENDOCRINE SYSTEM. The network of glands that produces hormones and releases them into the bloodstream. The thyroid gland is part of the endocrine system.

ENDOCRINE. Refers to glands that secrete hormones circulated in the bloodstream or lymphatic system.

ENDOCRINOLOGIST. A physician who specializes in the diagnosis and treatment of endocrine system conditions, including thyroid dysfunction.

ENDODONTIST. A dentist who specializes in diagnosing and treating diseases of the pulp and other inner parts of the tooth.

ENDOGENOUS OPIOIDS. Natural pain relievers produced by the body that are also associated with the sensation of itching.

ENDOGENOUS. Produced or originating from the body.

ENDOMETRIAL IMPLANTS. Growths of endometrial tissue that attach to organs, primarily in the pelvic cavity.

ENDOMETRIAL. Pertaining to the endometrium, a mucous membrane lining the uterus.

ENDOMETRIOSIS. A condition in which the tissue that normally lines the uterus (endometrium) grows in other areas of the body, causing pain, irregular bleeding, and frequently, infertility.

ENDOMETRIUM. The tissue lining the uterus that grows and sheds each month during a woman's menstrual cycle.

ENDORPHINS. A group of chemicals resembling opiates that are released in the body in response to trauma or stress. Endorphins react with opiate receptors in the brain to reduce pain sensations.

ENDOSCOPE. A medical instrument that can be passed into an area of the body (e.g., the bladder or intestine) to allow examination of that area. The endoscope usually has a fiber-optic camera, which allows a greatly magnified image to be shown on a television screen.

ENDOSCOPY. A diagnostic procedure in which a tube is inserted through the mouth, into the esophagus and stomach. It is used to visualize various digestive disorders, including hiatal hernias.

ENDOTHELIUM. A thin layer of smooth tissue that lines the inside of blood vessels, the heart and abdomen, and other body cavities.

ENDURANCE. The ability to sustain an activity over a period of time.

ENERGY. Includes nonmaterial (such as Qi) as well as material (such as blood) vital forces that create and sustain life.

ENGRAM. A permanent trace left in nerve tissue by a stimulus; in psychology, a latent memory picture or lasting trace left in the psyche by any experience.

ENHANCED EXTERNAL COUNTERPULSATION (EECP). A noninvasive angina treatment that increases blood flow to the heart.

ENTERITIS. Inflammation of the bowels.

ENTEROPATHY. A disease of the intestinal tract.

ENTRAINMENT. The patterning of body processes and movements to the rhythm of music.

ENZYME. Any of a group of complex proteins that originate in living cells and help to break down organic compounds into simpler molecules.

ENZYME THERAPY. An alternative approach to the treatment of digestive disorders and other illnesses related to nutritional problems. Enzyme therapy emphasizes the use of animal- or plant-derived digestive enzymes as dietary supplements.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

EOSINOPHILIA MYALGIA SYNDROME (EMS). A chronic, painful disease of the immune system that causes joint pain, fatigue, shortness of breath, and swelling of the arms and legs. EMS can be fatal.

EOSINOPHIL. A type of white blood cell that increases in number in response to certain medical conditions, such as allergy or parasitic infection.

EPICONDYLE. A projection on the surface of a bone; often an area for muscle and tendon attachment.

EPICONDYLITIS. A painful and sometimes disabling inflammation of the muscle and surrounding tissues of the elbow caused by repeated stress and strain on the forearm near the lateral epicondyle of the humerous (arm bone).

EPIDEMIC PAROTITIS. The medical name for mumps.

EPIDEMIC. A widespread regional disease outbreak.

EPIDEMIOLOGICAL STUDY. A study which analyzes health events and trends in particular patient populations.

EPIDERMIS. The outermost layer of skin cells.

EPIDURAL SPACE. The space immediately surrounding the outer most membrane of the spinal cord.

EPIGLOTTITIS. A serious bacterial infection that can develop rapidly and lead to airway obstruction.

EPILEPSY. A neurological disorder characterized by the sudden onset of seizures.

EPILEPTOLOGIST. A physician who specializes in the treatment of epilepsy.

EPINEPHRINE. Also called adrenalin, a secretion of the adrenal glands (along with norepinephrine) that helps the liver release glucose and limits the release of insulin. Norepinephrine is both a hormone and a neurotransmitter, a substance that transmits nerve signals.

EPISIOTOMY. A surgical incision of the vaginal opening made during childbirth to avoid tearing during delivery.

EPITHELIAL. Tissues that line cavities and body surfaces, such as the skin.

EPITHELIUM. The layer of tissue that covers body surfaces and lines the inner surfaces of body cavities and hollow organs.

EPSOM SALTS. A preparation of magnesium sulfate, used internally as a laxative or externally in compresses or warm baths to reduce swelling, inflammation, and itching from minor skin problems.

EPSTEIN-BARR VIRUS. A common herpes virus that is responsible for causing infectious mononucleosis. This virus is problematic in people who have a compromised immune system.

EQUINE-FACILITATED THERAPY. Another term for therapeutic riding.

EQUINOVARUS. A condition in which the foot is typically pulled inward.

EQUINUS. A common postural deformity, in which the foot is extended by the strong pull of the rear calf muscles, causing the toes to point.

ERECTILE DYSFUNCTION. Difficulty achieving or maintaining an erect penis.

ERGONOMICS. A branch of applied science that coordinates the physical design and arrangement of furniture, machines, and other features of a living or working environment with the needs and requirements of the individuals in that environment.

ERGOT PREPARATIONS. A classification of drugs made from a fungus, used primarily for the treatment of migraines.

ERUPTION. Emergence of teeth through the gums.

ERYTHEMA MIGRANS (EM). A red skin rash that is one of the first signs of Lyme disease in about 75% of patients.

ERYTHEMA. A diffuse red and inflamed area of the skin.

ERYTHROBLASTOSIS FETALIS. A disorder of newborn infants marked by a high level of immature red blood cells (erythroblasts) in the infant's blood.

ERYTHROCYTE SEDIMENTATION RATE (ESR). The rate at which red blood cells settle out in a tube of unclotted blood, expressed in millimeters per hour; elevated sedimentation rates indicate the presence of inflammation.

ERYTHROCYTES. Known as red blood cells, the ones that carry oxygen to every part of the body.

ERYTHROGENIC TOXIN. A toxin or agent produced by the scarlet fever-causing bacteria that causes the skin to turn red.

ERYTHROMYCIN. An antibiotic that can be used instead of penicillin.

ESCHAROTIC. A corrosive or caustic substance.

ESOPHAGITIS. Inflammation of the esophagus.

ESOPHAGUS. Muscular tube, about 10 in (25 cm) long, connecting the throat to the stomach.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

ESSENCE. The constituent of a plant that determines its characteristics.

ESSENTIAL AMINO ACIDS. Amino acids that cannot be produced by the human body and that must, therefore, be included in daily diet.

ESSENTIAL FATTY ACID (EFA). A fatty acid that the body requires but cannot make. It must be obtained from the diet. EFAs include omega-6 fatty acids found in primrose and safflower oils, and omega-3 fatty acids oils found in fatty fish and flaxseed, canola, soybean, and walnuts.

ESSENTIAL OIL. A term describing a wide variety of concentrated plant-derived oils. They are often used to make soaps and perfumes, as well as being used extensively in natural medical remedies.

ESSENTIAL TREMOR. An uncontrollable (involuntary) shaking of the hands, head, and face. Also called familial tremor because it is sometimes inherited.

ESTRADIOL. A steroid hormone produced in the ovary, a highly potent form of estrogen.

ESTRIOL. A steroid hormone thought to be the metabolic byproduct of estrone and estradiol. It is produced in higher concentrations during pregnancy.

ESTROGENIC. A substance that promotes estrus, the state in which a woman is capable of conceiving.

ESTROGEN. A class of steroid hormones that are predominant in females. The term often refers to the three major estrogens: estriol, estradiol, and estrone.

ESTRONE. A steroid hormone that is metabolically weaker than estradiol but more potent thatn estriol.

ETHANOL. The chemical that causes the effects and aftereffects of drinking alcoholic beverages.

ETHEREAL. Something that is of or from the heavens, usually used in a metaphysical sense.

ETHNOBOTANY. The study of the plant lore and agricultural practices of a people or culture.

ETHNOMEDICINE. Medicine pertaining to a particular ethnic group.

EUSTACHIAN TUBE. A thin tube between the middle ear and the pharynx. Its purpose is to equalize pressure on either side of the ear drum.

EXACERBATIONS. Increase in severity of a disease or condition.

EXANTHEM (PLURAL, EXANTHEMS OR EXANTHEMATA). A skin eruption regarded as a characteristic sign of such diseases as measles, German measles, and scarlet fever.

EXCISION. The process of excising, removing, or amputating.

EXFOLIATE. To shed skin; in skin care, the process of removing dead skin cells.

EXOCRINE. Refers to a system of organs that produces chemicals that go through a duct (or tube) to reach other organs or body surfaces whose functioning they affect.

EXPECTORANT. A substance or medication given to bring up phlegm or mucus from the respiratory tract.

EXTENSOR MUSCLES. A group of muscles in the forearm that serve to lift or extend the wrist and hand. Tennis elbow results from overuse and inflammation of the tendons that attach these muscles to the outside of the elbow.

EXTRAPYRAMIDAL SYMPTOMS (EPS). A group of side effects associated with antipsychotic medications. EPS include parkinsonism, akathisia, dystonia, and tardive dyskinesia.

EXUVIUM. A cast-off shell of an insect or crustacean. Cicada in traditional Chinese medicine is made from the molted shell of a cicada.

F

FALLOPIAN TUBE. The tube leading from the ovary into the uterus.

FALSE-NEGATIVE. A laboratory result that does not detect the presence of a disease that is actually present.

FAMCICLOVIR. An oral antiviral drug that is available under the trade name Famvir. The drug prevents the varicella zoster virus from replicating.

FARSIGHTEDNESS. Being able to see more clearly those objects far away as opposed to those that are near. Also called hyperopic.

FASCIA. The sheet of connective tissue that covers the body under the skin and envelops every muscle, bone, nerve, gland, organ, and blood vessel. Fascia helps the body to retain its basic shape.

FASCICULATION. Small involuntary muscle contractions visible under the skin.

FASTING. Avoiding food for a period of time.

FATS. Long chains of fatty acids that are stored in animal tissue.

FATTY ACID. A long-chain carboxylic acid found in fats, oils, and other lipids.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

FEBRIFUGE. A substance or medication that lowers or dispels fevers.

FEBRILE SEIZURE. Convulsions brought on by fever.

FEBRILE. Characteristic of fever.

FECES. Undigested food and other waste that is eliminated through the anus. Feces are also called fecal matter or stools.

FEEDBACK RESPONSE. A response to information carried back to the brain, or to other areas or glands from target tissues that generates a follow up response.

FELDENKRAIS. An educational method dedicated to improved movement and enhanced functioning originated by Moshe Feldenkrais (1904–1984), an engineer, physicist, and Judo expert.

FEMUR. The main bone in the human thigh and the strongest bone in the body.

FENFLURAMINE. An anorectic drug, withdrawn from the United States market in 1997 due to toxic effects.

FERRITIN. An iron storage protein found in the blood. High levels of serum ferritin may indicate iron overload.

FETUS. A developing unborn infant from the end of the eighth week after fertilization until birth.

FIBER. Nutrients in the diet that are not digested by the enzymes in the stomach and/or intestine.

FIBRINOGEN. A protein that is important in blood clotting.

FIBRINOLYSIS. The breakdown of fibrin, an insoluble protein that is the end product of blood clotting. Fibrinolysis results in the dissolution of small clots.

FIBROBLASTS. Found in connective tissue, these fat, oval cells help build fibrous tissue.

FIBROCARTILAGE. Cartilage that consists of dense fibers.

FIBROCYSTIC DISEASE. A common condition in middle-aged women, characterized by the growth of one or more cysts in the breasts. Cysts are small inclusions filled with fluid. These are harmless but may cause pain and tenderness.

FIBROIDS. Fibrous non-cancerous growths on the uterus or surrounding tissue.

FIBROMYALGIA. A chronic disease syndrome characterized by fatigue, widespread muscular soreness, and pain at specific points on the body.

FIBROSIS. The formation of fibrous, or scar, tissue which may follow inflammation and destruction of normal tissue.

FIGHT-OR-FLIGHT RESPONSE. The body's reaction to threats.

FIRE. An extremely high internal heat condition characterized by severe dehydration, red eyes, red face, constipation, insomnia, and agitation. Fire often affects Lungs, Liver, and Stomach.

FIRST-RANK SYMPTOMS. A list of symptoms that have been considered to be diagnostic of schizophrenia. These include delusions, somatic hallucinations, hearing voices commenting on one's behavior, and thought insertion or withdrawal.

FISTULA. An abnormal channel that creates an open passageway between two structures that do not normally connect.

FIVE ELEMENTS. The five basic substances (water, wood, fire, earth, and metal) that symbolize the fundamental qualities of the universe. In Chinese food cures, the five elements are correlated with the internal organs of the body and with the five basic food tastes.

FLAKE. A small, thin skin mass.

FLAVONE. A colorless crystalline compound found in skullcap and other plants that is the parent substance of a group of yellow plant pigments.

FLAVONOID. A food chemical that helps to limit oxidative damage to the body's cells and protects against heart disease and cancer.

FLUID EXTRACT. Made by simmering a plant and reducing the water until the mixture is thickened. This resulting liquid has a concentrated form of the active constituents of a plant. Alcohol, glycerin, or tincture of Benzoin may be added as a preservative.

FLUORESCEIN ANGIOGRAPHY. A method that uses a fluorescent dye for photographing blood vessels of the retina.

FLUORIDE. A mineral compound, taken orally or topically, used to strengthen teeth.

FLUOROQUINOLONES. A group of newer antibiotics that are used to treat penicillin-resistant staphylococcal infections.

FLUOROURACIL. An anticancer drug.

FLUOUROQUINOLONES. A group of medications used to treat bacterial infections in many different parts of the body. They are often used to treat bacteria

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

that have become resistant to penicillin and other antibiotics.

FOLATE. A vitamin used to treat a number of medical conditions.

FOLLICLE-STIMULATING HORMONE (FSH). A hormone that stimulates the development of egg follicles in the ovaries, egg maturation, and the production of estrogen.

FOLLICLE. The small sac at the base of a hair shaft. The follicle lies below the skin surface.

FOMITE. An inanimate object that can transmit infectious organisms.

FONTANELLE. A membrane-covered soft spot in an infant's skull where the bone has not yet completely formed.

FOOD ADDITIVE. A chemical added to food to enhance its flavor, color, appearance, shelf life, or some other quality. Food additives are regulated by the U.S. Food and Drug Administration (FDA).

FORENSIC. Pertaining to courtroom procedure or evidence used in courts of law.

FORMALDEHYDE. A chemical preservative used in many building materials such as adhesives, furnishings, and manufactured woods (plywood and particle board). It can cause eye, nose, and throat irritation and it has been listed as a cancer-causing agent.

FORSKOLIN. Chemical compound extracted from coleus root that appears to be effective in treating asthma, eczema, colic, and other conditions.

FRAGILE X SYNDROME. A genetic condition related to the X chromosome that affects mental, physical, and sensory development.

FREE OXYGEN RADICALS. Also called free radicals, these are by-products of oxygen that cause oxidative damage to the body's cells.

FREE RADICAL. A molecule with an unpaired electron that has a strong tendency to react with other molecules in DNA (genetic material), proteins, and lipids (fats), resulting in damage to cells. Free radicals are neutralized by antioxidants.

FREUDIAN ANALYSIS. A type of psychological treatment where the therapist seeks to help the patient resolve conflicts and traumas buried in the subconscious.

FRIEDREICH'S ATAXIA. An inherited disease that usually manifests in childhood or adolescence, characterized by loss of muscular coordination (ataxia), curvature of the spine, impaired speech, and cardiomyopathy.

FRUCTOSE. A type of natural sugar found in many fruits, vegetables, and in honey.

FUNCTIONAL CYST. A benign cyst that forms on the ovary and resolves on its own without treatment.

FUNCTIONAL FOOD. A food or food ingredient that is thought to confer health benefits in addition to the nutrients it contains.

FUNDOPLICATION. Surgical procedure that increases pressure on the LES (lower esophageal sphincter), reducing reflux.

FUNGICIDE. A substance that kills fungi.

FUNGUS. A plant that lacks both leaves and flowers, and lives on decaying matter. The fungi may be single-celled or grow quite large. The group of fungi includes molds, yeasts, smuts, and mushrooms.

FURANOSESQUITERPENES. A sub-class of compounds known as terpenes in the oils of plants and foods that do not contain an alcohol portion. These compounds tend to be found in volatile oils, and are related to the aroma of volatile and essential oils.

FUROCOUMARINS. A type of compound found in certain foods and plants including celery, limes, and angelica root, known to effect the skin and the immune system; may increase the risk of skin cancer.

FURUNCLE. The medical name for a boil.

G

GALACTOGOGUE. A substance that stimulates the production of breast milk in nursing mothers.

GAMMA LINOLENIC ACID (GLA). An essential fatty acid that is found in borage seed oil.

GAMMA RADIATION. High energy electromagnetic waves emitted in some nuclear reactions.

GANGRENE. A serious condition characterized by decay or death of an organ, tissue, or bone caused by a lack of oxygen and nutrients and by bacterial infections.

GASTRIC ACID. Also, stomach acid; helps break up fats and proteins for further digestion, aids in the absorption of nutrients through the walls of the intestines into the blood, and helps protect the gastrointestinal tract from harmful bacteria.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

GASTRITIS. Inflammation of the stomach, particularly of its mucous membrane.

GASTROESOPHAGEAL REFLUX DISEASE (GERD). A disorder of the lower end of the esophagus, caused by stomach acid flowing backward into the esophagus and irritating the tissues.

GASTROINTESTINAL TRACT. The entire length of the digestive system, including the mouth, pharynx, esophagus, stomach, small intestine, large intestine, rectum, and anus.

GASTROINTESTINAL. Pertaining to the stomach and intestine.

GAUCHER'S DISEASE. A rare genetic disease caused by a deficiency of enzymes needed for the processing of fatty acids.

GEL ELECTROPHORESIS. A laboratory test that separates molecules based on their size, shape, or electrical charge.

GENE THERAPY. A method of treating a disorder by replacing damaged or abnormal genes with normal ones.

GENERAL PARESIS. A form of neurosyphilis in which patients' personality, as well as their control of movement, is affected. Patients may develop convulsions or partial paralysis.

GENIOPLASTY. An operation performed to reshape the chin. Genioplasties are often done to treat OSA because the procedure changes the structure of the patient's upper airway.

GENISTEIN. A plant isoflavone, found as genistin in soy, that is used to produce ipriflavone.

GENOTYPE. The genetic makeup of an organism or group of organisms with respect to a biological trait or set of traits.

GENU VALGUS. Deformity in which the legs are curved inward so that the knees are close together, nearly or actually knocking as a person walks with ankles widely apart.

GENUS. With regard to botany, genus refers to a plant's classification. Plants within the same genus have one or more common characteristics.

GEOPATHIC STRESS. Any variation in normal energy patterns that some believe can cause illness.

GERMAN COMMISSION E. The world standard for regulatation of herbal products.

GERMANDER. A plant, *Teucrium chamaedrys*, that belongs to the mint family and may have been used to adulterate skullcap products reported to cause liver damage.

GERMICIDAL. Known to kill germs.

GESTALT THERAPY. A form of therapy that focuses on helping patients reconnect with their bodies and their feelings directly, as contrasted with verbal intellectual analysis.

GESTATION. Time of development in the uterus.

GHEE. Butter heated to removed the fat, used in Ayurvedic foods and remedies.

GHRELIN. A recently discovered peptide hormone secreted by cells in the lining of the stomach. Ghrelin is important in appetite regulation and maintaining the body's energy balance.

GILBERT'S SYNDROME. A mild hereditary form of jaundice.

GINGIVITIS. Inflamed and bleeding gums caused by poor dental hygiene, respiratory diseases, and other disease processes.

GINGKO BILOBA. A shade tree native to China that has fan-shaped leaves and fleshy seeds.

GINKGO EXTRACT. Made from the leaves of the *Ginkgo biloba* tree, this extract, used in other countries to treat circulatory problems, may also reduce the symptoms of patients with dementia.

GINSENG INTOXICATION. Possible side effects of taking *Panax ginseng* products.

GINSENOCIDES. Active chemicals found in American ginseng.

GLANDS. Collections of tissue that produce chemicals needed for chemical reactions elsewhere in the body.

GLAUCOMA. An eye disorder caused by damage to the optic nerve resulting in vision loss. Glaucoma is usually accompanied by inflammation and increased pressure in the eye (intraocular pressure). There are several types that may develop suddenly or gradually.

GLOBIN. One of the component protein molecules found in hemoglobin. Normal adult hemoglobin has a pair each of alpha-globin and beta-globin molecules.

GLOBUS PALLIDUS. Areas on each side of the brain that transmit signals controlling movement.

GLOMERULONEPHRITIS. A serious inflammation of the kidneys that can be caused by streptococcal

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

bacteria; a potential complication of untreated scarlet fever.

GLOSSOPHARYNGEAL NEURALGIA. Sharp recurrent pain deep in the throat that extends to the area around the tonsils and possibly the ear. It is triggered by swallowing or chewing.

GLOTTIS. The opening between the vocal cords at the upper part of the larynx.

GLUCAGON. A hormone produced in the pancreas that raises the level of glucose in the blood. An injectable form of glucagon, which can be bought in a drug store, is sometimes used to treat insulin shock.

GLUCAN. A complex sugar molecule consisting of smaller units of glucose.

GLUCOCORTICOIDS. A general class of adrenal cortical hormones that are mainly active in protecting against stress and in protein and carbohydrate metabolism. They are widely used in medicine as anti-inflammatories and immunosuppresives.

GLUCOSAMINE. A complex carbohydrate composed of glucose and an amino acid called glutamine. It is an important building block of cartilage and is often taken together with chondroitin as a treatment for osteoarthritis.

GLUCOSE-6-PHOSPHATE DEHYDROGENASE (G6PD) DEFICIENCY. A hereditary disorder that can lead to episodes of hemolytic anemia in combination with certain medications.

GLUCOSE. Simple sugar that serves as the main energy source for cells.

GLUTATHIONE PEROXIDASE. An enzyme that functions as an antioxidant, in the activation of other enzymes, and in the transport of minerals and amino acids. Human glutathione is dependent on selenium.

GLUTATHIONE. Formed from three amino acids (protein building blocks), glutathione is an antioxidant involved in cellular respiration, protection of red blood cells, and the detoxification by the liver of foreign substances.

GLUTEN. A protein found in wheat, rye, barley, and oats.

GLYCEMIC INDEX (GI). A numeric scale for measuring the level and speed of blood glucose increase that carbohydrate-containing food creates upon consumption.

GLYCEMIC. The presence of glucose in the blood.

GLYCOPROTEINS. Complex proteins that protect immune factors and growth factors from being broken down by stomach acids. Glycoproteins are also called protease inhibitors.

GLYCOSAMINOGLYCANS. Any of a group of polysaccharides with high molecular weight that contain amino sugars and often form complexes with proteins.

GLYCOSIDE. An herbal carbohydrate that exerts powerful effect on hormone-producing tissues. The glycoside breaks down into a sugar and a non-sugar component.

GLYCYRRHIZIN. A sweet-tasting compound in licorice root that has a number of beneficial effects on the cardiovascular and digestive systems.

GNRH ANTAGONISTS. A group of medications that affect the reproductive hormones. These medications are used to treat fibroids, endometriosis, and infertility.

GOBO. A variety of burdock that can be used as a vegetable for soups and salads. It is sometimes known as Japanese burdock.

GOITER. Swelling of the thyroid gland caused by under or over production of thyroxine.

GONADS. Organs that produce sex cells—the ovaries and testes.

GONIOSCOPE. An instrument that consists of a magnifier and a lens equipped with mirrors and sits on the patient's cornea.

GONOCOCCUS. The bacterium *Neisseria gonorrheae*, which causes gonorrhea, a sexually transmitted infection of the genitals and urinary tract that may occasionally affect the eye, causing blindness if not treated.

GOSSYPOL. A chemical found in cotton seed oil that is thought to immobilize sperm.

GOUT. A disease causing inflammation of the joints, especially the knees, toes, and fingers due to the deposit of crystallized uric acid in the joints.

GRAM-POSITIVE BACTERIA. Bacteria that turn purple in the Gram staining process. They lack a secondary outer membrane that allows dye to enter and stain the bacterial cell.

GRAM-POSITIVE/NEGATIVE. A classification system that differentiates bacteria into two classes based upon staining characteristics determined by the composition of the cell wall. Usnea are effective against gram-positive bacteria.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

GRANULATION TISSUE. Small, red, bumpy, velvety-looking tissue produced during the healing of wounds.

GRANULES. Small packets of reactive chemicals stored within cells.

GRANULOCYTOPENIA. A condition characterized by a deficiency of white blood cells.

GRAVE'S DISEASE. A condition produced by excessive production of thyroid hormones, characterized by and enlarged thyroid gland and protruding eyeballs.

GUIDED IMAGERY. Use of relaxation and mental visualization to improve mood and/or physical wellbeing.

GUILLAIN-BARRÉ SYNDROME. Also called acute idiopathic polyneuritis, a neurologic syndrome that can cause numbness in the limbs and muscle weakness following certain viral infections.

GUMMA. A symptom that is sometimes seen in tertiary syphilis, characterized by a rubbery swelling or tumor that heals slowly and leaves a scar.

GUT FLORA. A term used to describe all of the microorganisms living in the digestive system.

H

H_2 ANTAGONIST. A type of drug that relieves indigestion by reducing the production of stomach acid.

HDL CHOLESTEROL. High-density lipoprotein cholesterol is a component of cholesterol that helps protect against heart disease. HDL is nicknamed "good cholesterol."

HLA-B27. An antigen or protein marker on cells that may indicate the possibility of ankylosing spondylitis.

HMG-COA REDUCTASE. Hepetic hydroxy-methyl-glutaryl coenzyme A is an enzyme created in the liver that promotes the production of cholesterol.

HABIT. Referring to the particular set of physical and mental tensions present in any individual.

HACHIMIJIOGAN. A Chinese herbal formula that is thought to protect the eyes against cataracts by increasing the glutathione content of the lens.

HAIR FOLLICLES. Tiny organs in the skin, each one of which grows a single hair.

HAIRY LEUKOPLAKIA OF THE TONGUE. A white area of diseased tissue on the tongue that may be flat or slightly raised. Caused by the Epstein-Barr virus, it is an important diagnostic sign of AIDS.

HALLUCINATION. False sensory perceptions. A person experiencing a hallucination may hear sounds or see people or objects that are not really present. Hallucinations can also affect the senses of smell, touch, and taste.

HALLUCINOGEN. A substance that causes the perception of a stimulus or object when it is not really present.

HASHIMOTO'S DISEASE. A condition in which the body makes antibodies to destroy the thyroid; tendency toward this disease is thought to be inherited.

HATHA YOGA. Form of yoga using postures, breathing methods and meditation.

HEALING CRISIS. A temporary worsening of the patient's symptoms during successive stages of homeopathic treatment.

HEARTBURN. A popular term for an uncomfortable burning sensation in the stomach and lower esophagus, sometimes caused by the reflux of small amounts of stomach acid.

HEAT CONDITION. A disease whose symptoms include fever, rashes, redness, dehydration, and inflammation.

HEAT. In traditional Chinese medicine (TCM), a disease condition characterized by intolerance for cold, deficient fluids, and irritability, among other things.

HEAVY METAL POISON. A metal with a specific gravity greater than about 5.0, that is poisonous, such as lead or mercury.

HEAVY METALS. Chemical elements that have a specific gravity (a measure of density) at least four times that of water, generally with harmful effects on the human body.

HEBEPHRENIC SCHIZOPHRENIA. An older term for what was later known as the disorganized subtype of schizophrenia.

HEBERDEN'S NODES. Swelling or deformation of the finger joints closest to the fingertips.

HELICOBACTER PYLORI. A gram-negative rod-shaped bacterium that lives in the tissues of the stomach and causes inflammation of the stomach lining.

HELMINTH. A general term for a parasitic worm.

HEMATOLOGIST. A physician who specializes in the study of blood and diseases of the blood.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

HEMATURIA. A condition in which red blood cells are present in the urine. Blood in the urine may be readily visible or small amounts may give the urine a smoky appearance.

HEME. The iron-containing molecule in hemoglobin that serves as the site for oxygen binding.

HEMIPLEGIA. Paralysis of one side of the body.

HEMOCHROMATOSIS. Also known as iron overload; a genetic condition in which excess iron is stored in the tissues and organs by the body where it can build up to toxic amounts.

HEMODIALYSIS. The blood processing procedure used when kidney function is lost. Blood is removed from a vein, processed through a dialysis machine (artificial kidney), and put back into a vein.

HEMOGLOBIN. An iron-containing pigment of red blood cells composed of four amino acid chains (alpha, beta, delta, gamma) that delivers oxygen from the lungs to the tissues of the body.

HEMOGLOBIN A. Normal adult hemoglobin which contains a heme molecule, two alpha-globin molecules, and two beta-globin molecules.

HEMOGLOBIN S. Hemoglobin that is produced in association with the sickle cell trait; the beta-globin molecules of hemoglobin S are defective.

HEMOLYSIS. The destruction or breakdown of red blood cells.

HEMOLYTIC ANEMIA. A blood disorder characterized by destruction of red blood cells.

HEMOLYTIC. Referring to the destruction of the cell membranes of red blood cells, resulting in the release of hemoglobin from the damaged cell.

HEMOPHILIA. A blood-clotting disorder that can lead to serious hemorrhage from minor cuts and injuries.

HEMORRHAGE. Rapid high-volume loss of blood.

HEMORRHOID. A varicose vein in the area around the anus. Hemorrhoids sometimes cause pain and bleeding.

HEMOSTATIC. A substance used to stop bleeding or hemorrhaging. Yarrow has hemostatic properties.

HEPATIC ENCEPHALOPATHY. Brain and nervous system damage that occurs as a complication of liver disorders.

HEPATIC. An herb that acts as a liver tonic.

HEPATITIS. A viral infection of the liver.

HEPATOTOXIC. Poisonous to the liver.

HERALD PATCH. The initial skin eruption of pityriasis rosea, usually on the back or chest, that occurs a week or two before the main outbreak. It is sometimes called the mother patch.

HERB. In naturopathy, a plant or plant derivative or extract prescribed for health or healing.

HERNIATED. Characterized by an abnormal protrusion of a body part. In a herniated disk, the disk protrudes into the spinal canal between the vertebrae.

HERPES SIMPLEX VIRUS. A virus that can cause fever and blistering on the skin, mucous membranes, or genitalia.

HERPES ZOSTER VIRUS. Acute inflammatory virus attacking the nerve cells on the root of each spinal nerve with skin eruptions along a sensory nerve ending.

HIATAL HERNIA. Protrusion of part of the stomach through the diaphragm to a position next to the esophagus.

HIATUS. Opening in the diaphragm through which the stomach connects to the esophagus.

HIGH SELF. The Huna term for the level of the personality that functions as a guardian spirit and forms the person's connection with God.

HIGH SPOT. An area of a tooth or restoration that feels abnormal or uncomfortable because it hits its opposing tooth before other teeth meet.

HIPPOCAMPUS. A horseshoe-shaped ridge in the brain that is part of the limbic system. The hippocampus is associated with the formation of short-term memory and with the sense of spatial orientation.

HIRSUITISM. The growth of excess hair on the bodies of women, usually due to a hormone imbalance.

HISTAMINE RECEPTOR 2 (H2) BLOCKER. Heartburn medication that reduces the production of stomach acid.

HISTAMINE. A substance released from cells that causes some of the symptoms of an allergic reaction.

HODGKIN'S DISEASE. A type of cancer characterized by slowly enlarging lymph tissue; symptoms include generalized itching.

HOLISTIC. A practice of medicine that focuses on the whole patient, and addresses the social, emotional, and spiritual needs of a patient as well as their physical treatment.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

HOMEOPATHY. The principal known as like cures like, the use of minute quantities of remedies that if used in large doses would produce the effects of the disease being treated.

HOMEOSTASIS. The statch the body has reached its optimal level of internal balance and stability.

HOMOCYSTEINE. An amino acid produced from the metabolism of other amino acids. High levels are an independent risk factor for heart disease.

HONOKIOL. A compound derived from magnolia that is used in some Japanese herbal preparations as a mild tranquilizer. Honokiol may also be useful in treating lung cancer.

HOOK-UP. A state of effortless connection with a life-enhancing force.

HORDEOLUM. The medical term for stye; an infection or small abscess formation in the hair follicle glands of the eyelids.

HORMONE. A chemical messenger secreted by a gland and released into the blood, where it travels to distant cells to exert an effect.

HORMONE REPLACEMENT THERAPY (HRT). The use of estrogen and progesterone to replace hormones that the ovary no longer supplies. HRT is no longer used as long-term therapy for postmenopausal women.

HORMONE THERAPY. Treatment that inhibits the production of hormones such as testosterone and estrogen.

HOT FLASH. A temporary sensation of warmth that starts in the chest and radiates into the neck and face, usually associated with the menopause in women. It is sometimes called a hot flush.

HUBBARD TANK. A large water tank or tub used for underwater exercises.

HUMAN CHORIONIC GONADOTROPIN (HCG). A hormone produced by the placenta during pregnancy.

HUMAN IMMUNODEFICIENCY VIRUS (HIV). A transmissible retrovirus that causes AIDS in humans. Two forms of HIV are recognized: HIV-1, which causes most cases of AIDS in Europe, North and South America, and most parts of Africa; and HIV-2, which is chiefly found in West African patients.

HUMAN PAPILLOMAVIRUS. 120 types of viruses, about 30 of which are sexually transmitted and cause genital warts and cervical cell changes.

HUNTINGTON'S CHOREA. A hereditary disease that typically appears in midlife, marked by gradual loss of brain function and voluntary movement. Some of its symptoms resemble those of schizophrenia.

HUNTINGTON'S DISEASE. A fatal inherited disorder characterized by progressive neurologic symptoms including loss of motor and cognitive function.

HYDRODISTENTION. Filling the bladder with fluid for the purpose of examining the internal bladder with a cystoscope.

HYDROGEN PEROXIDE. A colorless, unstable compound of hydrogen and oxygen (H_2O_2). An aqueous solution of hydrogen peroxide is used as an antiseptic and bleaching agent.

HYDROGENATED FAT. Unsaturated fat, commonly vegetable oil, that is processed with high heat and hydrogen to make it solid at room temperature. Margarine is a common hydrogenated fat.

HYDROTHERAPY. The use of water (hot, cold, steam, or ice) to relieve discomfort and promote physical well-being. Also called water therapy.

HYPERALIMENTATION. A method of refeeding anorexics by infusing liquid nutrients and electrolytes directly into central veins through a catheter.

HYPERAROUSAL. A state or condition of muscular and emotional tension produced by hormones released during the fight-or-flight reaction.

HYPERBARIC OXYGEN THERAPY (HBO). A form of oxygen therapy in which the patient breathes oxygen in a pressurized chamber.

HYPEREMESIS. Severe vomiting during pregnancy. Hyperemesis appears to increase a woman's risk of postpartum depression.

HYPERGLYCEMIA. A condition of having too much glucose or sugar in the blood.

HYPERHIDROSIS. A condition in which a person produces excessive amounts of perspiration.

HYPERKALIMIA. Excessive amount of potassium in the blood that serves as an indicator of the possible serious complications in bodily functions.

HYPERLIPIDEMIA. A condition characterized by abnormally high levels of lipids in blood plasma.

HYPERMAGNESEMIA. A condition in which the levels of magnesium in body fluids are too high, almost always caused by a combination of low calcium levels and taking too much magnesium as a dietary supplement.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

HYPERMETABOLIC. Conditions that increase the rate of metabolism, such as fever and hyperthyroidism.

HYPERPLASIA. A condition in which cells, such as those making up the prostate gland, divide abnormally rapidly and cause the organ to become enlarged.

HYPERPLASTIC OBESITY. Excessive weight gain in childhood, characterized by an increase in the number of new fat cells.

HYPERREFLEXIA. Reflexes that are abnormally brisk.

HYPERSENSITIVITY. A condition in which very small amounts of allergen can cause the airways to constrict and bring on an asthmatic attack.

HYPERSOMNIA. Excessive sleeping (can be from 9–20 hours, or more); a symptom of dysthymic and major depressive disorder.

HYPERTENSION. Abnormally high arterial blood pressure, which if left untreated can lead to hear disease and stroke.

HYPERTHYROIDISM. Excess functioning of the thyroid gland, resulting in overproduction of the thyroid hormones.

HYPERTROPHIC OBESITY. Excessive weight gain in adulthood, characterized by expansion of already existing fat cells.

HYPERTROPHY. A term for enlargement, as in BPH (benign prostatic hypertrophy).

HYPERURICEMIA. High levels of uric acid in the bloodstream.

HYPNOGOGIC HALLUCINATIONS. Dream-like auditory or visual hallucinations that occur while falling asleep.

HYPNOSIS. A sleeplike condition that can be artificially induced in people, in which they are susceptible to suggestions from the hypnotist.

HYPNOTIC. Capable of inducing sleep.

HYPOCALCEMIA. Calcium deficiency in the blood.

HYPOCRETINS. Chemicals secreted in the hypothalamus that regulate the sleep/wake cycle.

HYPOGLYCEMIA. A condition characterized by abnormally low levels of glucose in the blood.

HYPOKALEMIA. A condition in which the levels of potassium in the bloodstream are too low.

HYPOMAGNESEMIA. A condition of magnesium deficiency, the symptoms of which include heart arrhythmias, muscle tremors or twitches, seizures, hyperactive reflexes, and psychiatric symptoms.

HYPOMANIA. A milder form of mania that is characteristic of bipolar II disorder.

HYPONATREMIA. Abnormally low levels of sodium in the blood, often related to dehydration.

HYPOPNEA. Shallow or excessively slow breathing usually caused by partial closure of the upper airway during sleep.

HYPOTHALAMUS. A gland in the forebrain that controls heartbeat, body temperature, thirst, hunger, body temperature and pressure, blood sugar levels, and other functions.

HYPOTHALAMUS. The part of the brain that controls the endocrine system.

HYPOTHYROIDISM. A condition that is characterized by decreased activity of the thyroid gland (a hormone-producing gland at the front of the neck) that often results in weight gain, tiredness, dry skin, and other symptoms.

HYPOTONIC. Describes the condition hypotonia, in which fine motor control is floppy, without tone.

HYSTERECTOMY. Removal of the uterus by surgery either to remove tumors, treat cancer or precancerous conditions. Surgery is performed through the abdominal wall or through the vagina.

I

ICTERUS. Another name for jaundice.

IDEAL WEIGHT. Weight corresponding to the lowest death rate for individuals of a specific height, gender, and age.

IDIOPATHIC. Of unknown cause. Primary Raynaud's is an idiopathic disorder.

ILEOSTOMY. The removal of a pouch at the end of the small intestine.

ILLITE. A family of hydrous potassium aluminosilicate clays, characterized by a three-layer structure and a gray, light green, or yellow-brown color.

IMMUNE FUNCTION. The body's defense system against bacteria, viruses and fungi, and any malfunction of the organism.

IMMUNE RESPONSE. The protective reaction by the immune system against foreign antigens (substances that the body perceives as potentially dangerous). The

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

immune system combats disease by neutralizing or destroying antigens.

IMMUNE SUPPRESSING. Any substance or event that reduces the activity of the immune system.

IMMUNE SYSTEM. The system of specialized organs, lymph nodes, and blood cells throughout the body that work together to prevent foreign organisms (bacteria, viruses, fungi, etc.) from invading the body.

IMMUNOCOMPROMISED. Having a damaged immune system.

IMMUNODEFICIENT. A condition in which the body's immune response is damaged, weakened, or is not functioning properly.

IMMUNOFLUORESCENT ASSAY. A laboratory technique using a fluorescent dye and a special microscope to identify the cause of an infection.

IMMUNOGLOBULIN G (IGG). Immunoglobulin type gamma, the most common type found in the blood and tissue fluids.

IMMUNOGLOBULINS. A group of globulin proteins that function as antibodies.

IMMUNOSUPPRESSIVE. Anything that acts to suppress or weaken the body's immune system, thus making it more susceptible to disease.

IMMUNOTHERAPY. Treatment of cancer by stimulating the body's immune defense system.

IMPETIGO. A bacterial infection of the skin characterized by skin blistering.

IMPOTENCE. Refers to a condition where the penis is unable to get erect or stay erect.

IMPACTED TOOTH. A tooth that is growing against another tooth, bone, or soft tissue.

IN VITRO TESTING. A test performed in a lab setting rather than in a human or animal organism. The test may involve living tissue or cells, but takes place out of the body.

IN VITRO. A Latin phrase that literally means "in the glass." It refers to an entity or process developed in a laboratory or similar controlled nonliving environment.

IN VIVO TESTING. A test performed on a living organism, such as a controlled clinical study involving human test subjects. In vivo is Latin for "in the living body."

IN VIVO. Literally, "in life," referring to laboratory experiments that make use of living organisms.

INCONTINENCE. Inability to control bladder or bowel movements.

INCONTINENTIA PIGMENTI SYNDROME (IPS). An inherited skin disorder characterized by blistered lesions in infancy, which heal but leave uneven pigmentation of the skin.

INCUBATION PERIOD. The time it takes for a person to become sick after being exposed to a disease.

INDEX CASE. The first case of a contagious disease in a group or population that serves to call attention to the presence of the disease.

INDIVIDUALIZED EDUCATIONAL PLAN (IEP). A plan that guides the delivery of services to a child with special education needs.

INDOCYANIN GREEN ANGIOGRAPHY. A sensitive method for examining retinal blood vessels.

INFERTILITY. Inability to have children.

INFEST. To be parasitic in a host.

INFLAMMATION. A localized reaction to tissue injury or damage, usually characterized by pain, swelling, and redness.

INFLUENZA. A virus that affects the respiratory system, causing fever, congestion, muscle aches, and headaches.

INFUSION. An herbal preparation made by adding herbs to boiling water and then steeping the mixture to allow the medicinal herb to infuse into the water.

INHIBITION. Referring to the moment in an Alexander lesson when the student refrains from beginning a movement in order to avoid tensing of the muscles.

INK BAG. The part of a cuttlefish that contains their dye, also known as sepia.

INNERVATE. To supply a part of the body with nerves. For example, the vagus nerve supplies nerve function to the eardrum; therefore, we say that the eardrum is innervated by the vagus nerve.

INSECTICIDES. Any substance used to kill insects.

INSOMNIA. A prolonged and usually abnormal inability to obtain adequate sleep.

INSULIN RESISTANCE. Also called metabolic syndrome, a condition in which the body fails to properly respond to the insulin it produces.

INSULIN. A hormone produced by the pancreas that helps to regulate blood sugar levels.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

INTEGRATIVE MEDICINE. A medical approach that brings together and uses aspects of conventional and alternative medicines.

INTENTION TREMOR. A rhythmic purposeless shaking of the muscles that begins with purposeful (voluntary) movement. This tremor does not affect muscles that are resting.

INTERFERON. An immune protein produced by cells in the body to fight viral infections.

INTERMEDIATE HOST. The host organism for an intermediate (larval) stage in the life cycle of a parasite.

INTERMITTENT CLAUDICATION. Calf pain that occurs while walking and is relieved at rest, and related to restricted blood flow to the legs.

INTERNAL DERANGEMENT. A condition in which the cartilage disc in the temporomandibular joint lies in front of its proper position.

INTERNATIONAL UNIT (IU). A widely accepted definition that is used to quantify a given substance.

INTERSTITIAL CYSTITIS. An inflammatory, and sometimes scarring, condition of the bladder that affects many women.

INTERSTITIAL SPACES. Areas of the body occurring outside the vessels or organs, between the cells.

INTESTINAL DYSBIOSIS. An imbalance among the various microorganisms that live in the digestive tract.

INTESTINAL FLORA. The beneficial bacteria that live in the digestive tract and aid digestion of food.

INTESTINAL MICROFLORA. The bacteria and other microorganisms that live in the human gastrointestinal tract.

INTESTINES. Also called the bowels and divided into the large and small intestine. They extend from the stomach to the anus, where waste products exit the body. The small intestine is about 20 ft (6.1 m) long and the large intestine, about 5 ft (1.5 m) long.

INTRACELLULAR. Inside a cell.

INTRAVENOUS (IV) THERAPY. Administration of fluids through the veins.

INTRAVENOUS FLUIDS. In cases of immediate need for hydration, nourishment, or medicine, a needle with tubing is inserted directly into the vein.

INTRAVENOUS. Within a vein.

INTUBATION. Surgical procedure whereby a tube is inserted into the windpipe of a seriously ill patient to facilitate breathing.

INULIN. A carbohydrate belonging to a class of compounds known as fructans. Inulin fiber is resistant to digestion in the upper gastrointestional tract, so it reaches the large intestine essentially intact.

IODINE. A trace mineral used by the body to produce thyroid hormones.

IQ. Intelligence quotient; a measure of intellectual functioning determined by performance on standardized intelligence tests.

IRIS. The colored ring of muscle that controls the amount of light allowed to reach the retina.

IRRADIATION. The act of exposing something to ultraviolet rays or x rays.

IRRITABLE BOWEL SYNDROME (IBS). A functional disturbance of the lower intestine that can cause bloating, cramping, abdominal pain, diarrhea, constipation, and painful bowel movements.

ISCHEMA. Local anemia due to mechanical obstruction, mainly arterial narrowing, of the blood supply.

ISCHEMIC. Insufficient blood supply to a specific organ or tissue.

ISLES OF LANGERHANS. Cellular masses of tissue in a space within the pancreas that secrete insulin.

ISOFLAVONES. Compounds, including plant estrogens, with two phenolic rings, that are found in significant quantities in soybeans and soy foods. Isoflavones belong to the larger category of flavonoids, plant compounds that are often a source of the plant fruit.

ISOMER. Two compounds that have the same molecular formulas but different chemical structures.

ISOQUINOLINE ALKALOID. Natural compound found in plants that may be toxic to humans and animals, but also possesses therapeutic qualities.

ISOTOPE. An unstable form of an element that gives off radiation to become stable. An isotope of an element has the same number of protons as the element, but a different number of neutrons, and therefore, a different mass number than that of the element.

ISOTRETINOIN. A drug that decreases sebum production and dries up acne pimples.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

ITAI-ITAI DISEASE. The first reported cases of cadmium poisoning in the world, seen in Japan in about 1950. The name means "ouch-ouch" and represents the sufferers' screams of pain.

J

JACUZZI. A trademark name for a whirlpool bath.

JARISCH-HERXHEIMER REACTION. A temporary reaction to penicillin treatment for syphilis that includes fever, chills, and worsening of the skin rash or chancre.

JAUNDICE. A condition characterized by higher-than-normal levels of bilirubin in the bloodstream and an accompanying yellowing of the skin and eyes.

JOINT. Structures holding two or more bones together.

JUNGIAN ANALYSIS. A method of psychological treatment where the patient strives to understand the internal, often mythic images in his or her thoughts and dreams.

K

KAHUNA. A traditional Hawaiian village leader responsible for physical and spiritual healing; some specialize in herbs, others in massage.

KAMPO. Traditional Japanese system of herbal medicine.

KAPOSI'S SARCOMA. A cancer of the connective tissue that produces painless purplish red (in people with light skin) or brown (in people with dark skin) blotches on the skin. It is a major diagnostic marker of AIDS.

KARATE. A native Okinawan fighting style brought to Japan in the early twentieth century.

KAVALACTONES. Medically active compounds in kava root that act as local anesthetics in the mouth and as minor tranquilizers.

KELOIDS. An excessive overgrowth of collagen scar tissue, often found in young women and African Americans.

KERATOCONUS. A progressive condition in which the cornea takes on a cone shape, causing major changes in the eye's refractive power.

KESHAN DISEASE. A form of heart disease in children, first discovered in the Keshan region of China. It may represent a selenium deficiency syndrome.

KETOACIDOSIS. A condition due to starvation or uncontrolled type 1 diabetes. Ketones are acid compounds that form in the blood when the body breaks down fats and proteins. Symptoms include abdominal pain, vomiting, rapid breathing, extreme tiredness, and drowsiness.

KETOCONAZOLE. An antifungal medication.

KETOGENIC DIET. A diet that results in energy produced through the metabolism of fatty acids, usually from stored fat. By eating a very high amount of fat (80%) and low amounts of carbohydrates and protein, the body burns stored fat. Close medical supervision required.

KETONES. The potentially toxic by-products of partially burned fatty acids that the body uses as an alternative fuel source when carbohydrates are not available.

KETOSIS. An abnormal accumulation of ketones in the body, usually found in people who have diabetes mellitus or who are fasting, pregnant, starving, or on a high fat diet. Ketosis can cause serious side effects including dehydration, kidney stones, or gall stones.

KIDNEY DIALYSIS. A process by which blood is filtered through a dialysis machine to remove waste products that would normally be removed by the kidneys. The filtered blood is then circulated back into the patient; also called renal dialysis.

KIDNEY STONES. Hard lumpy masses of mineral wastes that are formed in the kidneys and may cause blockages.

KINESIOLOGY. The study of the anatomy and physiology of body movement, particularly in relation to therapy.

KNEE AND ANKLE JERK REFLEXES. Normal reflexes elicited usually by testing with a reflex hammer and demonstrating, by being present, a healthy and intact nervous system.

KOOSH BALL. A lightweight, "furry" ball of rubber band material used in Davis technique exercises for retraining neuropathways in the brain of a person with dyslexia.

KOPLIK'S SPOTS. Tiny spots occurring inside the mouth, especially on the inside of the cheek. These spots consist of minuscule white dots (like grains of

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

salt or sand) set onto a reddened bump. Unique to measles.

KUNDALINI. In yoga, energy that resides at the base of the spine and can be channeled upward for spiritual awakening.

KUNDALINI YOGA. A type of yoga that focuses on the body's innate psychospiritual energy (*kundalini shakti* or "serpent power" in Sanskrit) through breathing exercises, meditation, yoga postures, and chanting.

KUNG FU. Another name for qigong; today it more commonly means a Chinese martial arts practice.

L

LACERATION. Also called a tear. Separation of skin or other tissue by a tremendous force, producing irregular edges.

LACTIC ACID BACTERIA (LAB). Bacteria that convert carbohydrates to lactic acid as a major metabolic product.

LACTIC ACID. A by-product of muscular work out; slow clearance of lactic acid from tissues is associated with muscular fatigue.

LACTO-OVO VEGETARIAN. People who do not eat meat, but do consume dairy products and eggs.

LACTOBACILLUS ACIDOPHILUS. A bacteria found in yogurt that changes the balance of the bacteria in the intestine in a beneficial way.

LACTOFERRIN. A protein found in colostrum that carries iron to red blood cells and appears to have anti-cancer activity.

LACTOSE. A sugar found in milk and milk products. Some people are lactose intolerant, meaning they have trouble digesting lactose. Lactose intolerance can produce symptoms resembling those of IBS.

LACTOSE INTOLERANCE. An inability to properly digest milk and dairy products.

LAETRILE. The chemical amygdalin, obtained from apricots, peaches, and bitter almonds.

LAMINITIS. A veterinary term for inflammation in the foot of a horse.

LANCEOLATE. Narrow, leaf shape that is longer than it is wide and pointed at the end.

LANUGO. A soft, downy body hair that develops on the chest and arms of anorexic women.

LAPACHOL. The name given to the active ingredient in pau d'arco, which appears to have some anti-cancer properties.

LAPAROSCOPE. An instrument that allows a surgeon to look into the abdominal cavity through a small incision and perform surgery on a small area.

LAPAROSCOPY. An examination of the interior of the abdomen with a lighted tube called a laparoscope.

LAPAROTOMY. Surgical operation performed to open the abdomen for inspection of the internal organs, or as a preliminary step to additional surgery.

LARYNX. A part of the respiratory tract between the pharynx and the trachea, having walls of cartilage and muscle, and containing the vocal cords.

LASER-ASSISTED IN-SITU KERATOMILEUSIS (LASIK). A procedure that uses a cutting tool and a laser to modify the cornea and correct moderate to high levels of myopia (nearsightedness).

LATCHING. A term used to describe a baby's mouth hold on his or her mother's nipple.

LATENT PERIOD. Also called incubation period, the time between infection with a disease-causing agent and the development of disease.

LATENT. A nonactive virus in a dormant state within a cell. Herpes virus is latent in the nervous system.

LATERAL NAIL FOLD. The fold of skin along the side of the nail.

LAW OF SIMILARS. The basic principle of homeopathic medicine that governs the selection of a specific remedy. It holds that a substance of natural origin that produces certain symptoms in a healthy person will cure those same symptoms in a sick person.

LAWS OF CURE. A set of three rules used by homeopaths to assess the progress of a patient's recovery.

LAXATIVE. Promotes evacuation of the bowels.

LAZY BOWEL SYNDROME. An inability to have a bowel movement without the aid of chemical laxatives.

LDL CHOLESTEROL. Low-density lipoprotein cholesterol is the primary cholesterol molecule. High levels of LDL increase the risk of coronary heart disease. LDL is nicknamed "bad cholesterol."

LEAKY GUT. Intestinal permeability caused by damage to the intestinal mucosa, which leads to increase in the toxic load placed on the liver.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

LECITHIN. A fatty substance found in plant and animal material, particularly egg yolk.

LEFT BRAIN. The left cerebral hemisphere, which controls activity on the right side of the body in humans. The left brain is thought to be specialized for language use and mathematical calculation; it is also associated with logical analysis and fact-based decisions.

LEGUME. A family of plants used for food that includes beans, peas, and lentils. Legumes are high in protein, fiber, and other nutrients.

LEIOMYOMA. The medical term for a benign mass in muscle tissue. Uterine fibroids are one type of leiomyoma.

LEISHMANIASIS. A disease of the tropics transmitted by sandflies.

LEMON BALM. An herb with antiviral properties that is also used to alleviate anxiety or insomnia. The botanical name for lemon balm is *Melissa officinalis.*

LENS. The transparent, elastic, curved structure behind the iris (colored part of the eye) that helps focus light on the retina. Also refers to any device that bends light waves.

LENTINAN. A compound found in shiitake mushrooms that helps to boost the immune system.

LEPROSY. A chronic disease characterized by lesions on the body, especially the face, that enlarge and spread if left untreated, leading to paralysis, muscle wasting, and deformities.

LEPTIN. A protein hormone that affects feeding behavior and hunger in humans. At present it is thought that obesity in humans may result in part from insensitivity to leptin.

LESION. An area of skin that has been infected or diseased.

LEUCINE. An amino acid produced by the hydrolysis of proteins by pancreatic enzymes during digestion and by putrefaction of nitrogenous organic matter.

LEUKOCYTES. Also called white blood cells, the ones that fight infection and boost the immune system.

LEUKORRHEA. Also known as yeast infection, a fungal infection of the vagina producing a thick white discharge.

LEUKOTRIENES. Substances that are produced by white blood cells in response to antigens and contribute to inflammatory and asthmatic reactions.

LEVODOPA. A naturally occurring amino acid that is converted to dopamine in the brain; the primary treatment for Parkinson's disease.

LICHEN PLANUS. A noncancerous, chronic, itchy skin disease that causes small, flat purple plaques on wrists, forearm, and ankles.

LICHEN. An organism consisting of algal and fungal partners living together in a mutually beneficial relationship.

LICORICE ROOT. An herb believed to be helpful in treating ulcers, respiratory problems, and a variety of other conditions.

LIGAMENT. A fibrous band of tissue connecting cartilage or bones that serves to strengthen and support joints.

LIGASE CHAIN REACTION. A laboratory technique for detecting sexually transmitted disease organisms in urine by rapidly copying and recopying the organism's DNA, thus making the presence of infection easier to detect.

LIGATION. Tying off a blood vessels or other tube with wire or suture, usually during surgery.

LIMBIC SYSTEM. A group of structures in the brain that includes the hypothalamus, amygdala, and hippocampus. The limbic system plays an important part in regulation of human moods and emotions.

LINDANE. An organic chloride, neurotoxic insecticide that kills lice.

LINOLEIC ACID. An essential fatty acid that is found in sesame oil.

LIPASE. An enzyme that is used by the body to break down dietary fats (lipids), especially triglycerides, into a form that can be absorbed in the intestines.

LIPID. Any of a variety of substances that, along with proteins and carbohydrates, make up the main structural components of living cells.

LIPOPOLYSACCHARIDE. A complex carbohydrate with lipids (organic fats and waxes) attached to its molecule.

LIPOPROTEIN(A). A type of bad cholesterol that increases the risk of heart attack or stroke.

LIPOSUCTION. The surgical removal of fatty tissue underneath the skin through a small incision in the skin.

LIPOTROPIC. Substances that help prevent or correct excessive fat deposits in liver.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

LITHONTRIPIC. Phytochemical effect that acts to prevent the formation of kidney or gall stones and facilitates dissolution and removal when formed.

LITHOTRIPSY. A nonsurgical technique for removing gallstones by breaking them apart with high-frequency sound waves.

LIVER ENCEPHALOPATHY. A condition in which the brain is affected by a buildup of toxic substances that would normally be removed by the liver. The condition occurs when the liver is too severely damaged to cleanse the blood effectively.

LOBECTOMY. Surgical removal of an entire lobe of the lung.

LOBELINE. An alkaloid compound found in lobelia that resembles nicotine in its pharmacological effects. It has been studied by researchers in the field of tobacco addiction and drug abuse.

LOCKJAW. Refers to a common name given to the disease taken from its most pervasive symptom.

LODESTONE. A variety of magnetite that possesses magnetic polarity.

LOTUS SUTRA. One of the most sacred texts of Buddhism, regarded as a summary of the supreme Buddhist teaching that leads one directly to enlightenment.

LOW SELF. The Huna term for the subconscious mind. The word "low" does not mean inferior in value, but refers only to what is below the level of consciousness.

LOW-DENSITY LIPOPROTEIN. LDL, the so-called bad cholesterol.

LOWER BURNER. A TCM term for the kidneys.

LOWER ESOPHAGEAL SPHINCTER (LES). Muscle at the base of the esophagus that opens to allow food to enter the stomach and closes to prevent reflux back into the esophagus.

LOZENGE. A medicated candy intended to be dissolved slowly in the mouth to soothe irritated tissues of the throat.

LUES MALIGNA. A skin disorder of secondary syphilis in which areas of ulcerated and dying tissue are formed. It occurs most frequently in HIV-positive patients.

LUMBOSACRAL. Referring to the lower part of the backbone or spine.

LUMPECTOMY. A surgical procedure in which only the cancerous tumor in the breast is removed, together with a rim of normal tissue.

LUNGS. In TCM, the parts of the body associated with breathing, such as the lungs and the skin. It also regulates the movement of water and qi through the body channels.

LUMBAGO. Lower back pain caused by rheumatoid arthritis, muscle strain, osteoarthritis, or a ruptured spinal disk.

LUMBAR PUNCTURE (LP). A medical test in which a very narrow needle is inserted into a specific space between the vertebrae of the lower back in order to draw a sample of CSF for further examination. Also referred to as a spinal tap.

LUMBAR SPINE. The segment of the human spine above the pelvis that is involved in low back pain. There are five vertebrae, or bones, in the lumbar spine.

LUMBAR VERTEBRAE. Five bones in the lower spine.

LUPUS ERYTHEMATOSUS. An autoimmune disease that can damage skin, joints, kidneys, and other organs.

LUPUS NEPHRITIS. Kidney damage associated with systemic lupus erythematosis, an autoimmune disease. The kidney damage is gradual, but leads to complete kidney failure.

LUPUS. Either of two inflammatory diseases affecting connective tissue, one largely confined to the skin, the other affecting the joints and internal organs.

LUTEIN. An antioxidant carotenoid found in large quantities in dark-green, leafy vegetables such as spinach and kale. Lutein is deposited on the lens and macula of the eye where it protects cells from damage caused by ultraviolet and blue light.

LUX. The International System unit for measuring illumination, equal to one lumen per square meter.

LYME BORRELIOSIS. Another name for Lyme disease.

LYME DISEASE. A chronic, recurrent inflammatory disease carried by deer ticks and caused by a spirochete.

LYMPH NODES. Small bean-shaped structures that are scattered along the lymphatic vessels. These nodes serve as filters and retain any bacteria or cancer cells that are traveling through the system.

LYMPHATIC SYSTEM. The vessels, nodes, and organs that carry the clear lymph fluid, containing lymphocytes and other white blood cells throughout the body, and that filter the blood to remove dead cells and other debris.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

LYMPHOCYTE. A type of white blood cell that is important in the formation of antibodies and that can be used to monitor the health of AIDS patients.

LYMPHOMA. Cancer of the lymph nodes.

LYMPH. An alkaline fluid found in the lymphatic vessels that is usually clear, transparent fluid, unless it is draining from the intestines when it then appears milky.

M

MACROBIOTICS. A diet emphasizing grains, certain vegetables, legumes, and fish.

MACROCYTIC ANEMIA. A condition caused by cobalamin deficiency, which is characterized by red blood cells that are too few, too fragile, and abnormally large.

MACROPHAGE. Specialized cells present throughout the lymphoid tissues of the body that circulate in the bloodstream. Macrophages have a surface marker that stimulates other cells to react to an antigen.

MACULAR DEGENERATION. Deterioration of part of the retina, causing progressive loss of vision. This is the most common cause of blindness in the elderly.

MACULA. An area of 0.1–0.2 in (3–5 mm) at the center of the retina that is responsible for sharp, central vision.

MAGNETIC RESONANCE IMAGING (MRI). An imaging technique that uses a large circular magnet and radio waves to generate signals from atoms in the body. These signals are used to construct detailed images of internal body structures and organs, including the brain.

MAGNETISM. A discredited theory put forth by Viennese physician Franz Anton Mesmer stating that all persons possess magnetic forces that can be used to influence magnetic fluid in other people and therefore effect healing.

MAJOR MINERAL. One of three important inorganic elements in human nutrition, distinguished from trace elements (minor minerals) and electrolytes. Magnesium is a major mineral, along with calcium and phosphorus.

MALABSORPTION PROBLEMS. A condition in which the intestinal tract is not able to absorb adequate nutrients from the food that passes through it (e.g., celiac disease, inflammatory bowel disease).

MALABSORPTION. The inability of the digestive tract to absorb all the nutrients from food due to some malfunction or disability.

MALADAPTIVE. Unsuitable; maladaptive behavior is behavior that is inappropriate to a given situation.

MALATHION. An organic phosphate, neurotoxic insecticide that kills lice.

MALIGNANT HYPERTHERMIA. A rare, inherited condition in which a person develops a very high fever when given certain anesthetics or muscle relaxants in preparation for surgery.

MALIGNANT MELANOMA. The most deadly of the three types of skin cancer.

MALIGNANT. Meaning cancerous and tending to spread to surrounding tissues.

MALNUTRITION. Any disorder of nutrition caused by insufficient or unbalanced diet that can result in impaired absorption or use of foods.

MALOCCLUSION. The misalignment of opposing teeth in the upper and lower jaws.

MAMMOGRAPHY. X-ray imaging of the breast that can often detect lesions in the tissue too small or too deep to be felt.

MANA. The Hawaiian word for life energy. According to Huna, mana can be transferred from the conscious mind into parts of the body needing healing or into talismans or crystals to charge them with energy.

MANDALA. A design, usually circular, that appears in religion and art. In Buddhism and Hinduism, the mandala has religious ritual purposes and serves as a yantra (a geometric emblem or instrument of contemplation).

MANDIBLE. The medical name for the lower jaw.

MANIA. Hyperelevated, or excessively excited mood.

MANOMETRY. Procedure that measures pressure. In esophageal manometry, a thin, flexible catheter is placed down the esophagus to measure pressure at various points.

MANTRA. A sacred word or formula that is repeated as an incantation to focus the mind and spirit, or to induce a mystical state.

MARTIAL ARTS. Group of diverse activities originating from the ancient fighting techniques of the Orient.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

MASSAGE. A rubbing or kneading with hands or other parts of the body to stimulate circulation, make joints more supple, and relieve tension.

MAST CELLS. A type of immune system cell that is found in the lining of the nasal passages and eyelids and participates in the allergic response by releasing histamine.

MASTITIS. Inflammation of the breast.

MASTOID PROCESS. The rounded protrusion of bone that can be felt just behind the ear.

MATERIA MEDICA. In homeopathy, reference books compiled from the findings/effects of the various natural remedies, drugs and herbs.

MATURATION. The process by which stem cells transform from immature cells without a specific function into a particular type of blood cell with defined functions.

MAZE. A network of paths or passages intended to confuse, with numerous choices at different points. Unlike a labyrinth, a maze often has high walls intended to block the visitor's line of sight.

MCCUNE-ALBRIGHT SYNDROME (MCAS). A genetic syndrome characterized in girls by the development of ovarian cysts and puberty before the age of 8, together with abnormalities of bone structure and skin pigmentation.

MEDIAN NERVE. A nerve that runs through the wrist and into the hand. It provides sensation and some movement to the hand, the thumb, the index finger, the middle finger, and half of the ring finger.

MEDICINE BUNDLE. A leather bag or animal skin in which a Native American healer carries herbs, stones, and various ritual objects as a sign of his or her healing powers.

MEDITATION. A practice of concentrated focus upon a sound, object, visualization, the breath, movement, or attention itself in order to increase awareness of the present moment, reduce stress, promote relaxation, and enhance personal and spiritual growth.

MEDITERRANEAN DIET. A low-cholesterol diet that emphasizes vegetables and fish, and limits consumption of red meat and eggs.

MEFLOQUINE. An antimalarial drug that was developed by the United States Army in the early 1980s. Today, malaria resistance to this drug has become a problem in some parts of Asia (especially Thailand and Cambodia).

MEGA-DOSES. Very high doses of vitamins intended to treat a variety of ailments, as recommended by orthomolecular practitioners.

MEGALOBLASTIC ANEMIA. A condition caused by cobalamin deficiency, which is characterized by red blood cells which are too few, too fragile, and abnormally large. Also known as macrocytic anemia.

MEGALOBLAST. A large erythroblast (a red marrow cell that synthesizes hemoglobin).

MELANIN. A biological pigment that gives color to skin, hair, and the iris of the eye.

MELANOCYTE. The pigment-producing cell in the epidermis that produces malanin and determines skin color.

MELANOMA. A highly malignant form of skin cancer associated with overexposure to ultraviolet radiation from sunlight.

MELATONIN. A naturally occurring hormone involved in regulating the body's internal clock.

MENARCHE. The first menstrual period or the establishment of the menstrual function.

MENIERE'S DISEASE. The combination of vertigo and decreased hearing caused by abnormalities in the inner ear.

MENINGES. The three-layer membranous covering of the brain and spinal cord, composed of the dura, arachnoid, and pia. It provides protection for the brain and spinal cord, as well as housing many blood vessels and participating in the appropriate flow of CSF.

MENINGITIS. An infection or inflammation of membranes of the brain and spinal cord.

MENISCOCYTOSIS. Another word for sickle cell disease.

MENISCUS. Crescent-shaped disks of cartilage located on the head of the tibia that serve as shock absorbers.

MENOPAUSE. The permanent cessation of menstruation; also called the change of life or climacteric.

MENORRHAGIA. Excessive bleeding at the time of a menstrual period, either in amount of blood or number of days, of both.

MENSTRUATION. A monthly occurrence of blood and uterine material discharge from a woman's vagina while she is in her reproductive years.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

MENTASTICS. The active phase of Trager therapy. Mentastics are a form of movement reeducation in which clients learn to reexperience movement as pleasurable and positive.

MERCURY. A metallic element appearing as a silver-colored liquid at ordinary temperatures.

MERIDIAN. In traditional Chinese medicine, meridians are the invisible channels that run beneath the skin and through which the body's energy (chi) flows.

MESOTHELIOMA. A tumor consisting of spindle cells or fibrous tissue, usually in the lining of the lung.

META-ANALYSIS. An analysis of previous medical studies.

METABOLIC. Pertaining to metabolism, or the chemical processes that take place in the body, which result in growth, energy, elimination of waste, and other body functions.

METABOLISM. Biochemical processes related to the breakdown of food and its conversion into energy.

METABOLITE. A by-product of the physical and chemical change process known as metabolism.

METABOLIZE. For food and nutritional components, to convert food into energy and then break it down into simpler substances for excretion.

METASTASIZE. The spread of cancer to an area away from its original site.

METATES. Stone slabs used by Native Americans to grind corn and other grains.

METFORMIN. An anti-diabetic drug of the biguanide class. This drug increases the sensitivity of cells to insulin, but is capable of causing very severe adverse reactions, including lactic acidosis and anemia.

METHAMPHETAMINE. A form of amphetamine that is a potent stimulant of the central nervous system and is highly addictive.

METHANOL. A liquid alcohol, used as a solvent or denaturant for ethanol.

METHIONINE. An amino acid that provides benefits for the liver, as well as for conditions such as osteoarthritis, depression, fibromyalgia, and a host of other medical issues.

METHYLATION. The process by which a methyl group ($-CH_3$) is added to some compound, ion, or other chemical species.

METRONIDAZOLE. An anti-infective agent regarded as the best available drug for treating trichomoniasis. It is sold under the trade names Flagyl and MetroGel.

MIASM. In homeopathy, a hereditary weakness of the constitution and a corresponding predisposition to chronic disease.

MICROANGIOPATHIC. Pertaining to disorders of the small blood vessels.

MICROFLORA. Beneficial bacteria in the intestines. Microflora reinforce the barrier function of the intestinal mucosa to help prevent the attachment of pathogenic microorganisms and the entry of allergens.

MICRONIZED. A crystal that is ground to a very fine powder.

MICRONUTRIENT. An element essential to health that is required only in very small amounts. Micronutrients are sometimes called trace elements.

MIDDLE EAR. The inner portion of the ear made up of an air-filled chamber, which is separated from the outer ear by the tympanic membrane.

MIDDLE SELF. The Huna term for the conscious mind, including the ability to reason. The middle self is what others recognize as an individual's personality.

MIGRAINE. A severe headache, often accompanied by nausea and vomiting. It is usually experienced on one side of the head, and may be preceded by visual symptoms.

MILIARY TUBERCULOSIS. A form of TB in which the bacillus spreads through all body tissues and organs, producing many thousands of tiny tubercular lesions. Miliary TB is often fatal unless promptly treated.

MILK ALKALI SYNDROME. A disorder of the kidneys caused by long-term treatment of ulcers with antacids, particularly alkaline compounds such as sodium bicarbonate, and large amounts of calcium.

MIND'S EYE. A term referring to an imaginary point from which the mind views what the eyes look at or what the imagination presents.

MINERALS. Chemical elements that are found in plants and animals and are essential for life. There are two types of minerals: major minerals, which the body requires in large amounts, and trace elements, which the body needs only in minute amounts.

MINI-MENTAL STATUS EXAMINATION (MMSE). A brief test of memory and cognitive function that is used to evaluate the presence and extent of memory loss and to monitor the effects of treatment for memory loss.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

MIOTIC. A drug that causes pupils to contract.

MISCARRIAGE. Case when a fetus is prematurely ejected from the uterus during pregnancy.

MISO. A fermented paste made from soybeans, salt, and rice or barley, used to flavor soups and sauces in Asian cooking.

MITE. An insect parasite belonging to the order Acarina. The organism that causes scabies is a mite.

MITTELSCHMERZ. A German word for the pain that some women experience at ovulation.

MIXED MANIA/MIXED STATE. A mental state in which symptoms of both depression and mania occur simultaneously.

MODALITY. A factor or circumstance that makes a patient's symptoms better or worse. Modalities include such factors as time of day, room temperature, external stimuli, the patient's level of activity, sleep patterns, etc.

MOHS SURGERY. A type of micrographic surgery for removal of a visible tumor. Mohs surgery has a high cure rate (up to 99% for certain types of new lesions and 95% for recurrent cancers), with minimal removal of healthy surrounding tissue.

MONACOLIN. An HMG-CoA reductase inhibitor, which assists in the lowering of cholesterol levels.

MONOAMINE OXIDASE (MAO-B) INHIBITORS. Drugs such as selegiline that inhibit the enzyme MAO-B that breaks down dopamine in the brain.

MONOAMINE OXIDASE INHIBITOR (MAOI). An antidepressant drug that prevents the breakdown of monoamine neurotransmitters (such as serotonin) in the gaps between nerve cells. Nardil and Parnate are common MAOI brands.

MONOCLONAL ANTIBODY. A protein substance that is produced in the laboratory from a single clone of a B-cell, the type of cell of the immune system that makes antibodies. Monoclonal antibodies are used in cancer treatment.

MONOCYTE. A large white blood cell that is formed in the bone marrow and spleen.

MONOMER. A molecule that can combine with others to form a dimmer or a polymer.

MONONUCLEOSIS. A flu-like illness caused by the Epstein-Barr virus.

MOOD DISORDER. A group of mental disorders involving a disturbance of mood, along with either a full or partial excessively happy (manic) or extremely sad (depressive) syndrome not caused by any other physical or mental disorder. Mood refers to a prolonged emotion.

MORBIDITY. The unhealthiness or disease characteristics associated with a mental disorder.

MOTHER TINCTURE. The first stage in the preparation of a homeopathic remedy, made by soaking a plant, animal, or mineral product in a solution of alcohol.

MOTILITY. The movement or capacity for movement of an organism or body organ. Indigestion is sometimes caused by abnormal patterns in the motility of the stomach.

MOTOR NEURON. A nerve cell that specifically controls and stimulates voluntary muscles.

MOXIBUSTION. A technique of treatment in which the practitioner warms the skin over vital qi points by holding a burning herbal wick above the skin.

MRI (MAGNETIC RESONANCE IMAGING). The diagnostic technique which provides high quality cross-sectional images of organs or structures within the body through the use of a high-speed magnetic imaging device.

MUCILAGE. A gummy or gel-like substance present in plants.

MUCILAGINOUS. Having a moist, soft, and sticky quality. The inner rind of slippery elm bark is an example of a mucilaginous plant product.

MUCOPOLYSACCHARIDE. An older term for a class of large sugar molecules that are found in cartilage and other forms of connective tissue. Mucopolysaccharides are called glycosaminoglycans.

MUCOUS MEMBRANES. Thin sheets of tissue that cover and protect body passages that open to the outside. These membranes secrete mucus and absorb water and various salts.

MUCUS. The slippery secretion of the mucous membranes of the respiratory tract.

MUGWORT-SPICE SYNDROME. A type of food allergy that occurs in people who are sensitized to mugwort, celery, carrots, and other spices. It often takes the form of a skin rash.

MULLEIN. A plant related to the figwort, used by Native Americans to treat inflammations. It is still recommended by naturopaths to reduce the discomfort of swimmer's ear.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

MULTIPLE CHEMICAL SENSITIVITY. A condition characterized by severe and crippling allergic reactions to commonly used substances, particularly chemicals. Also called environmental illness.

MULTIPLE ENDOCRINE NEOPLASIA. Tumor formation characterized by a progressive, abnormal multiplication of cells that are not necessarily malignant in any of the glands that secrete chemicals directly into the blood stream, such as the thyroid gland, adrenal glands, or ovaries.

MULTIPLE SCLEROSIS (MS). A progressive, autoimmune disease of the central nervous system characterized by damage to the myelin sheath that covers nerves. In most types, the disease, which causes progressive paralysis, is marked by periods of exacerbation and remission.

MUSCLE BALANCE AND FUNCTION DEVELOPMENT (MBF). A movement therapy that strives to realign body posture through a series of exercises.

MUTATION. A change in a gene's DNA. Whether a mutation is harmful is determined by the effect on the product for which the gene codes.

MYALGIA. Muscle pain.

MYASTHENIA GRAVIS. A muscle weakness that occurs because the body makes antibodies to the natural chemical that facilitates transmission of impulses between the nerve and the muscle.

MYCELIUM. Fine thread-like tendrils that are capable of invading body organs and are sent out by a fungus to seek nutrition.

MYCOBACTERIA. A group of bacteria that includes *Mycobacterium tuberculosis*, the bacterium that causes tuberculosis, and other forms that cause related illnesses.

MYCOBACTERIUM AVIUM (MAC) INFECTION. A type of opportunistic infection that occurs in about 40% of AIDS patients and is regarded as an AIDS-defining disease.

MYELIN. A whitish fatty substance that acts like an electrical insulator around certain nerves in the peripheral nervous system.

MYELOGRAPHY. A medical test in which a special dye is injected into a nerve to make it visible on an x ray.

MYOCARDIAL INFARCTION. A blockage of a coronary artery that cuts off the blood supply to part of the heart. In most cases, the blockage is caused by fatty deposits.

MYOCARDIUM. The thick middle layer of the heart that forms the bulk of the heart wall and contracts as the organ beats.

MYOPATHY. Any abnormal condition or disease of muscle tissue, characterized by muscle weakness and wasting.

MYOSIN. A protein found in muscle tissue that interacts with another protein called actin during muscle contraction.

MYOSITIS. Inflammation of the muscle.

MYOTHERAPY. A form of trigger point therapy that relies on deep massage of the trigger points rather than injections to relieve pain.

MYOTONIA. The inability to normally relax a muscle after contracting or tightening it.

MYRCENE. A compound found in the essential oil of lemongrass that has pain-relieving properties.

MYRINGOTOMY. A surgical procedure performed to drain an infected middle ear. A newer type of myringotomy uses a laser instead of a scalpel.

MYXEDEMA. A condition that can result from a thyroid gland that produces too little of its hormone.

N

N-ACETYLCYSTEINE (NAC). A compound amino acid and antioxidant that protects the liver, supports the immune system, and helps break up mucous.

NAIL PLATE. The plate covering the tips of the fingers and toes. Commonly called the nail.

NARCOLEPSY. A lifelong sleep disorder marked by four symptoms: sudden brief sleep attacks, cataplexy, temporary paralysis, and hallucinations.

NARCOTIC. Capable of inducing deep sleep or unconsciousness.

NASOGASTRIC INTUBATION. Insertion of a tube through the nose and mouth for delivery of food and oxygen.

NASOPHARYNX. The part of the airway leading into the nose.

NATURAL KILLER (NK) CELL. A lymphocyte that acts as a primary immune defense against infection.

NATURALIZED. Plants that are introduced in the wild.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

NATUROPATHIC MEDICINE. An alternative system of healing that uses homeopathy, herbal medicine, and hydrotherapy, and rejects most conventional drugs as toxic.

N.D. OR DOCTOR OF NATUROPATHIC MEDICINE. In some states, Naturopathic doctors, medically trained in diagnostics and natural and alternative therapies, are licensed as Naturopathic physicians. In other states, they may be licensed or registered as Naturopathic doctors.

NEARSIGHTEDNESS. Being able to see more clearly those objects that are near as opposed to those in the distance. Also called myopia.

NEBULIZER. A device that delivers medicine into the airways in the form of a mist.

NECROSIS. Localized tissue death due to disease or injury, such as a lack of oxygen supply to the tissues.

NEGATIVE AIR IONIZATION. A procedure by which air molecules are ionized to produce an environment similar to summer air, in which negative ions are more common than they are in winter air.

NEGATIVE SYMPTOMS. Symptoms of schizophrenia that represent a loss or reduction of normal functioning.

NEMATODES. Roundworms, which are parasitic intestinal worms resembling earthworms.

NEOPLASIA. The development of new, abnormal tissue.

NEPHRECTOMY. Surgical removal of a kidney.

NEPHRITIS. An inflammation or irritation of the kidney.

NERVE. Fibers that carry sensory information, movement stimuli, or both from the brain and spinal cord to other parts of the body and back again. Some nerves, including the vagus nerve, innervate distantly separated parts of the body.

NERVINE. A medication or preparation given to calm the nervous system.

NERVOUS TIC. A repetitive, involuntary action, such as the twitching of a muscle or repeated blinking.

NEURAL TUBE DEFECT. Incomplete development of the brain, spinal cord, or vertebrae of a fetus, which is sometimes caused by a folic acid deficiency.

NEURALGIA. Severe pain caused by irritation of, or damage to, a nerve.

NEURALLY MEDIATED HYPOTENSION. A rapid fall in blood pressure that causes dizziness, blurred vision, and fainting, and is often followed by prolonged fatigue.

NEURASTHENIA. Nervous exhaustion. A disorder with symptoms of irritability and weakness, commonly diagnosed in the late 1800s.

NEURODERMATITIS. An itchy skin disease (also called lichen simplex chronicus) found in nervous, anxious people.

NEUROFIBRILLARY TANGLES. Abnormal structures, composed of twisted masses of protein fibers within nerve cells, found in the brains of persons with Alzheimer's disease.

NEUROIMAGING. The use of x ray studies and magnetic resonance imaging (MRIs) to detect abnormalities or trace pathways of nerve activity in the central nervous system.

NEUROLEPTIC. Another name for the older type of antipsychotic medications given to schizophrenic patients.

NEUROLOGICAL SYSTEM. The system that initiates and transmits nerve impulses including the brain, spinal cord, and nerves.

NEUROMUSCULAR. The body system of nerves and muscles as they function together.

NEURON. A nerve cell that receives, processes, saves, and sends messages. It consists of an axon, a body, and dendrites.

NEUROPATHY. Abnormality of the nerves that may be manifested as numbness, tingling, or weakness of the affected area.

NEUROSIS. A term commonly used to describe a range of relatively mild psychiatric disorders in which the sufferer remains in touch with reality.

NEUROTOXIN. A chemical compound that is toxic to the central nervous system.

NEUROTRANSMISSION. When a neurotransmitter, or chemical agent released by a particular brain cell, travels across the synapse to act on the target cell to either inhibit or excite it.

NEUROTRANSMITTER. A chemical in the brain that transmits messages between neurons, or nerve cells.

NICOTINE. The addictive ingredient of tobacco; it acts on the nervous system and is stimulating and calming.

NICOTINE REPLACEMENT THERAPY (NRT). A method of weaning a smoker from both nicotine and the oral

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

fixation that accompanies a smoking habit by giving the smoker smaller and smaller doses of nicotine in the form of a patch or gum.

NIGHT GUARD. A removable custom-fitted plastic appliance that fits between the upper and lower teeth to prevent them from grinding against each other.

NIRVANA. In Buddhism, release from the cycle of reincarnation through conquering one's hatreds, passions, and delusions.

NIT. The egg sac laid by adult female lice.

NOCICEPTOR. A nerve cell that is capable of sensing pain and transmitting a pain signal.

NOCTURIA. Excessive need to urinate at night. Nocturia is a symptom of OSA and often increases the patient's daytime sleepiness.

NOCTURNAL MYOCLONUS. A disorder in which the patient is awakened repeatedly during the night by cramps or twitches in the calf muscles; also called periodic limb movement disorder (PLMD).

NODULOCYSTIC ACNE. A disorder of the sebaceous (oil-secreting) glands in which deep, and sometimes painful, cysts and pustules are formed.

NOH THEATER. A Japanese theatrical form developed in the fourteenth century, featuring masks, extravagant costumes, bare stages, and restrained movements.

NON-ESSENTIAL AMINO ACIDS. Amino acids that are produced in the human body.

NON-HEME IRON. Dietary or supplemental iron that is less efficiently absorbed by the body than heme iron (ferrous iron).

NON-SMALL CELL LUNG CANCER. A group of lung cancers: squamous cell carcinoma, adenocarcinoma, and large cell carcinoma.

NONCOMEDOGENIC. A substance that contains nothing that would cause blackheads or pimples to form on the skin. Jojoba oil is noncomedogenic.

NONGONOCOCCAL URETHRITIS (NGU). A sexually transmitted urethral infection that is not gonorrhea.

NONPATHOGENIC. Incapable of causing disease; harmless.

NONSTEROIDAL ANTI-INFLAMMATORY DRUGS (NSAIDS). A group of pain-relieving medications that also reduce inflammation when used over a period of time. NSAIDs are often given to patients with osteoarthritis.

NOSOCOMIAL. Contracted in a hospital. Staph infections are the most common type of nosocomial infections.

NOSODE. A homeopathic medicine made from disease material. Nosodes are given in order to prevent infectious diseases.

NOURISH YIN. In TCM, to cool the body and replenish its fluids.

NSAIDS. Nonsteroidal anti–inflammatory drugs such as ibuprofen and naproxen.

NUCLEIC ACID. A type of chemical that is used as a component for building DNA. The nucleic acids found in DNA are adenine, thymine, guanine, and cytosine.

NUCLEOSIDES. Any of various compounds consisting of a sugar and a purine or pyrimidine base, especially a compound obtained by hydrolysis of a nucleic acid.

NUCLEUS PULPOSUS. The center portion of the intervertebral disk that is made up of a gelatinous substance.

NUMMULAR DERMATITIS. A skin infection in which the areas of irritated skin are coin-shaped.

NUTRACEUTICAL. Any food or food ingredient that is thought to provide health benefits, including the prevention and treatment of disease. Flaxseed is considered a nutraceutical.

NYSTAGMUS. An involuntary, rapid movement of the eyeball, usually from side to side.

O

OBSESSION. A recurring, distressing idea, thought, or impulse that feels foreign or alien to the individual.

OBSESSIVE-COMPULSIVE DISORDER (OCD). A disorder characterized by the tendency to perform repetitive acts or rituals in order to relieve anxiety.

OBSTRUCTION. A blockage.

OBSTRUCTIVE SLEEP APNEA (OSA). A potentially life-threatening condition characterized by episodes of breathing cessation during sleep alternating with snoring or disordered breathing. Low levels of oxygen in the blood of patients with OSA may eventually cause heart problems or stroke.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

OCCIPITAL NEURALGIA. Pain on one side of the back of the head caused by entrapment or pinching of an occipital nerve.

OCCLUSION. The way upper and lower teeth fit together during biting and chewing.

OCCLUSIVE. Closing off. One of the newest treatments for stress urinary incontinence in women is an external occlusive single-use cap that covers the urethral opening.

OFFAL. Waste parts of an animal that are usually discarded.

OFFICINALIS. Denoting that the substance is available without prescription.

OLEIC ACID. Oily acid found in most vegetable and animal oils and fats. Used to make ointments.

OLIGOMENORRHEA. Irregular, infrequent menses.

OLIGOMERIC PROANTHOCYANIDINS (OPCS). Part of a large group of phytochemicals called bioflavonoids.

OLIGOSACCHARIDE. A carbohydrate consisting of from three to six units of simple sugars (monosaccharides). A large number of oligosaccharides have been prepared by partially breaking down more complex carbohydrates (polysaccharides).

OLIGURIA. A condition in which the kidneys produce small amounts of urine.

OMEGA-3 FATTY ACIDS. Fatty acids from fish and vegetable oils that appear to protect against blood clots.

OMEGA-6 FATTY ACID. A fatty acid with its first double bond at the sixth carbon in its carbon chain.

ONCOLOGIST. Conventional medical doctor who has specialized training in cancer.

ONYCHOCRYPTOSIS. The medical term for ingrown nail.

OPHTHALMOLOGIST. A physician who specializes in the anatomy and physiology of the eyes and in the diagnosis and treatment of eye diseases and disorders.

OPHTHALMOSCOPE. An instrument, with special lighting, designed to view structures in the eye.

OPPORTUNISTIC INFECTION. A type of infection caused only under certain circumstances, as when a person's immune system is impaired.

OPHTHALMIC. Relating to the eye.

OPTIC NERVE. A bundle of nerve fibers that carries visual messages from the retina in the form of electrical signals to the brain.

OPTICAL COHERENCE TOMOGRAPHY (OCT). A diagnostic method for imaging eye tissue.

OPTIMUM DAILY INTAKE (ODI). The amount of a supplement that provides the greatest value to a person.

OPTOKINETIC. A reflex that causes a person's eyes to move when their field of vision moves.

OPTOMETRIST. A professional who evaluates and tests sight for correction like glasses or contact lens.

ORCHITIS. Inflammation of one or both testes, accompanied by swelling, pain, fever, and a sensation of heaviness in the affected area.

OREXIN. Another name for hypocretin, a chemical secreted in the hypothalamus that regulates the sleep/wake cycle. Narcolepsy is sometimes described as an orexin deficiency syndrome.

ORGAN OF CORTI. A spiral structure inside the cochlea that converts vibration to signals that are passed to the brain.

ORGANIC FOOD. Food grown without the use of synthetic pesticides and fertilizers.

ORGANIC ILLNESS. A physically, biologically based illness.

ORGASMIC DISORDER. Impairment of the ability to reach sexual climax.

ORTHOKERATOLOGY. A method of reshaping the cornea using a contact lens. It is not considered a permanent method to reduce myopia.

ORTHOPEDICS. A medical specialty concerned with treating diseases, injuries, and malformations of the bones and supporting structures, such as tendons, ligaments, and muscles.

ORTHOPEDIST. A specialist who is concerned with the bones, muscles, and joints and their points of interaction.

ORTHOSTATIC HYPOTENSION. A drop in systolic blood pressure, which can result in dizziness or loss of consciousness.

ORTHOSTATIC. Related to or caused by an upright position.

ORTHOTIC. A device or brace used to control, correct, or compensate for a bone deformity.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

OSSICLES. A group of tiny bones in the middle ear that conduct sound through vibration. The bones are the malleus (or anvil), incus (or hammer), and stapes (or stirrup).

OSTEOARTHRITIS. A type of arthritis marked by chronic degeneration of the cartilage of the joints, leading to pain and sometimes loss of function.

OSTEOBLASTS. Cells in the body that build new bone tissue.

OSTEOMALACIA. Softening, weakening, and removal of the minerals from bone in adults caused by vitamin D deficiency.

OSTEOPATHIC MANIPULATIVE TREATMENT (OMT). A collective term that refers to the variety of hands-on manipulative techniques practiced by osteopaths to diagnose and prevent disorders as well as to treat them.

OSTEOPATHY. System of medicine that believes that the human body can make its own remedies to heal infection; emphasizes the musculoskeletal system. It originally used manipulative techniques but also added surgical, hygienic, and medicinal methods when needed.

OSTEOPENIA. Mild thinning of the bone mass, but not as severe as osteoporosis. Osteopenia results when the formation of bone is not enough to offset normal bone loss. Osteopenia is generally considered the first step to osteoporosis.

OSTEOPOROSIS. A condition found in older individuals in which bones decrease in density and become fragile and more likely to break. It can be caused by lack of vitamin D and/or calcium in the diet.

OTITIS EXTERNA. Inflammation of the outer ear. Otitis externa is the medical term for swimmer's ear.

OTOSCLEROSIS. A disease that scars and limits the motion of the small conducting bones in the middle ear.

OTOSCOPE. A lighted medical instrument that can be used to visualize the ear canal and the tympanic membrane.

OTOTOXIC. Damaging to the nerves controlling the senses of hearing and balance.

OVARY. One of the two almond-shaped glands in the female reproductive system responsible for producing eggs and the hormones estrogen and progesterone.

OVER-THE-COUNTER (OTC). A medication that does not require a doctor's prescription.

OVULATION. The monthly process (part of a normal menstrual cycle) by which an ovarian follicle ruptures, releasing a mature egg cell.

OVUM. The reproductive cell of the female that contains genetic information and participates in the act of fertilization; also popularly called the egg.

OXALIC ACID. A poisonous white crystalline acid, used for bleaching, as a cleanser, and as a laboratory reagent.

OXIDATION. Combining with oxygen. In fatty acids, is the process is accomplished with the breakdown of the carbon chain in two-carbon segments.

OXIDIZED METABOLITE. The result of a process in which one molecule or substance is utilized by the body by first adding oxygen.

OXIDIZE. When oxygen reacts with a substance, it causes a decomposition of its living elements.

OZONE. A form of oxygen with three atoms in its molecule (O_3), produced by an electric spark or ultraviolet light passing through air or oxygen. Ozone is used therapeutically as a disinfectant and oxidative agent.

P

PSA. Prostatic Specific Antigen, elevated levels of which are a precondition to the development of cancer of the prostate gland.

PSA TEST. A blood test to determine prostate-specific antigen levels in men, which can help determine the risk for prostate cancer.

PACEMAKER. Device that is surgically implanted in those suffering from heart disease or disorders, that regulates the beating of the heart.

PACLITAXEL. A drug derived from the common yew tree (*Taxus baccata*) that is the mainstay of chemotherapy for ovarian cancer.

PAGET'S DISEASE. A common disease of the bone of unknown cause usually affecting middle-aged and elderly people, characterized by excessive bone destruction and unorganized bone repair.

PALLIDOTOMY. Surgery that destroys a small amount of tissue in the globus pallidus, which is overstimulated by the corpus striatum in PD. The surgery can improve tremors, rigidity, and bradykinesia.

PALMATE. A type of leaf that has lobes or leaflets radiating from a central point.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

PALPATION. A diagnostic technique in which the examiner gently presses, or palpates, a specific area of the patient's body. Palpation is used in the diagnosis of varicose veins.

PALPITATION. A feeling of irregular or rapid heartbeat.

PANAX GINSENG. A popular longevity herb cultivated in Asia, Russia, and the United States. Described by some herbalists as an adaptogen, it is purported to strengthen the immune system and have a number of other beneficial effects.

PANCARDITIS. Inflammation the lining of the heart, the sac around the heart, and the muscle of the heart.

PANCHAKARMA. Intensive Ayurvedic cleansing and detoxification program.

PANCREAS. A large elongated glandular organ near the stomach. It secretes juices into the small intestine, and the hormones insulin, glucagon, and somatostatin into the bloodstream.

PANCREATITIS. Inflammation of the pancreas.

PANDEMIC. Worldwide outbreak of an infection, afflicting millions of people.

PANTETHEINE. A growth factor substance essential in humans and a constituent of coenzyme A.

PAPANICOLAOU (PAP) SMEAR. A diagnostic test using a sampling of tissue from the cervix.

PAPILLOMA. A benign growth on the skin or mucous membrane.

PAPULE. A small solid raised area of skin, no more than 1 cm in diameter.

PARADIGM SHIFT. A philosophical or spiritual change in the pattern or model by which one lives and views the world.

PARADIGM. A pattern or model.

PARAMYXOVIRUS. A genus of viruses that includes the causative agent of mumps.

PARASITE. An organism that lives on or within a host organism for the purpose of obtaining food.

PARASITICIDAL. Known to kill or eliminate parasites.

PARASITICIDE. A substance destructive to parasites.

PARASOMNIA. A primary sleep disorder in which the person's physiology or behaviors are affected by sleep, the sleep stage, or the transition from sleeping to waking.

PARASYMPATHETIC NERVOUS SYSTEM. A part of the autonomic nervous system that is concerned with conserving and restoring energy. It is the part of the nervous system that predominates in a state of relaxation.

PARASYMPATHETIC RESPONSE. A state of deep relaxation and the mechanism by which the body naturally regenerates itself and maintains chemical and metabolic balance.

PARENCHYMA. The supportive tissue surrounding a particular structure. An example is that tissue that surrounds and supports the actually functional lung tissue.

PARESTHESIA. The sensation of pins and needles or tingling that is often the result of nerve compression.

PARKINSON'S DISEASE. A slowly progressive disease that destroys nerve cells. Parkinson's is characterized by shaking in resting muscles, a stooping posture, slurred speech, muscular stiffness, and weakness.

PARKINSONISM. A set of symptoms originally associated with Parkinson's disease that can occur as side effects of neuroleptic medications. The symptoms include trembling of the fingers or hands, a shuffling gait, and tight or rigid muscles.

PAROTITIS. Inflammation and swelling of one or both of the parotid salivary glands.

PAROXYSM. A severe attack or a sudden increase in intensity of a disease.

PARTHENOLIDE. A sesquiterpene lactone isolated from feverfew that is thought to be responsible for most of its medical effectiveness.

PARTURITION. Childbirth.

PASSIVE DIFFUSION. A process whereby a liquid migrates from a solution of lower concentration to a solution of higher concentration, making the latter more dilute.

PASSIVE SMOKING. A person's having to breathe in smoke from someone else's cigarette or pipe. Other terms for passive smoking are exposure to secondhand smoke or exposure to environmental tobacco smoke (ETS).

PASTE. Water-based products that are thick when applied and have a tendency to dry out and build up.

PASTIA'S LINES. Red lines in the folds of the skin, especially in the armpit and groin, that are characteristic of scarlet fever.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

PATCH TEST. A skin test that is done to identify allergens. A suspected substance is applied to the skin. After 24 to 48 hours, if the area is red and swollen, the test is positive for that substance.

PATENT FORMULAS. Chinese herbal formulas that were patented centuries ago and are believed to be proven over centuries of use and study.

PATHOGENIC BACTERIA. Bacteria that produce illness.

PATHOGENS. Micro-organisms capable of causing disease.

PATHOLOGICAL, OR, NON-PATHOLOGICAL. Terms indicating whether a condition is considered a disease state.

PATHOLOGIST. A doctor who specializes in the diagnosis of disease by studying cells and tissues under a microscope.

PEAK EXPIRATORY FLOW (PEF). A test used to measure how fast air can be exhaled from the lungs to measure the openness of the airways.

PEDICULICIDE. Any substance that kills lice.

PEDICULOSIS (PLURAL, PEDICULOSES). A lice infestation.

PELLAGRA. A condition caused by a dietary deficiency of niacin, one of the B vitamins. Symptoms include dementia, diarrhea, and dermatitis.

PELVIC INFLAMMATORY DISEASE (PID). An infection of the uterus, fallopian tubes, and/or ovaries.

PELVIC LYMPHADENECTOMY. Surgical removal of the lymph nodes and passageways within the pelvis.

PEMPHIGUS VULGARIS. An autoimmune skin disorder that causes blistering of the skin and mucous membrane.

PENICILLAMINE. A drug used to treat medical problems (such as excess copper in the body and rheumatoid arthritis) and to prevent kidney stones. It is also sometimes prescribed to remove excess lead from the body.

PENICILLIN. An antibiotic that is used to treat bacterial infections.

PENILE IMPLANT. An artificial device inserted by surgery in the penis to produce an erection. Implantation of rigid or semi-rigid bars produces a permanent erection; use of an inflatable device allows the man to produce an erection at will.

PEPTIC ULCER DISEASE (PUD). A stomach disorder marked by corrosion of the stomach lining due to the acid in the digestive juices.

PERCUTANEOUS ABSORPTION. The process by which certain strong medications, such as selenium compounds, can enter the body through the skin.

PERENNIAL. A plant that grows every year without reseeding.

PERFORATION. A hole that develops in a body tissue. In otitis media, the eardrum sometimes perforates because of the pressure of fluid behind it.

PERIMENOPAUSE. The time span just before a woman reaches menopause. It usually begins when a woman is in her 40s and may produce many of the symptoms associated with menopause.

PERINATAL ASPHYXIA. Lack of oxygen that occurs before, during, or around the time of birth.

PERINEAL AREA. The genital area between the vulva and anus in a woman, and between the scrotum and anus in a man.

PERINEOMETER. A device for measuring PC-muscle contraction.

PERIODIC LIMB MOVEMENTS IN SLEEP (PLMS). Random movements of the arms or legs that occur at regular intervals during sleep.

PERIODONTAL DISEASE. Disease of the gums and teeth. Symptoms include bleeding and receding gums, gingivitis, abscesses, and loose teeth.

PERIODONTITIS. A gum disease that destroys the structures supporting the teeth, including bone.

PERIOSTEUM. The specialized layer of connective tissue that covers all bones in the body.

PERIOSTITIS. Inflammation of the tissue covering the bone.

PERIPHERAL NEUROPATHY. A nerve disease associated with diabetes that causes numbness, tingling, pain, or burning in the feet, legs, and toes.

PERIPHERAL VISION. The ability to see objects that are not located directly in front of the eye. Peripheral vision allows people to see objects located on the side or edge of their field of vision.

PERISTALSIS. A wave-like action of rhythmic contractions throughout the smooth muscles of the digestive tract, from esophagus to rectum.

PERMETHRIN. A synthetic pyrethroid for killing lice.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

PERNICIOUS ANEMIA. A type of anemia that occurs when the stomach does not secrete enough intrinsic factor, which is necessary for the absorption of vitamin B_{12}.

PERSISTENT GENERALIZED LYMPHADENOPATHY (PGL). A condition in which HIV continues to produce chronic painless swellings in the lymph nodes during the latency period.

PERSONALITY DISORDER. A group of conditions characterized by a general failure to learn from experience or adapt appropriately to changes, resulting in personal distress and impairment of social functioning.

PESTICIDES. Chemicals used to kill insects.

PETIT MAL SEIZURES. A less severe form of epileptic seizure.

PETRISSAGE. A massage technique in which the therapist kneads or squeezes the muscles with both hands.

PETROLEUM JELLY OR OINTMENT. Petrolatum, a gelatinous substance obtained from oil that is used as a protective dressing.

PEYOTE. The dried top of the mescal cactus, used by shamans in some Southwestern cultures to induce a trance state. Peyote contains a chemical called mescaline that produces hallucinations.

PEYRONIE'S DISEASE. A disease resulting from scarring of the corpus cavernosa, which causes painful erections.

PH. A comparative measure of the acidity or alkalinity of a solution.

PHARMACODYNAMICS. The study of the relationships and interactions of herbs.

PHARMACOGNOSIST. A person involved in pharmacognosy, the science concerned with the medical products of plants in their natural state.

PHARMACOPOEIA. A book describing drugs, chemicals, and medicinal preparations, especially one recognized as an authority and serving as a standard.

PHARYNX. The cavity at the back of the throat that leads from the mouth and nasal passage to the larynx.

PHENACETIN. A compound formerly used to ease pain or fever, but withdrawn because of its serious side effects.

PHENOTHIAZINES. A parent compound for the synthesis of some antipsychotic compounds.

PHENYLALANINE. An essential amino acid that cannot be consumed by people with a metabolic disease known as phenylketonuria (PKU).

PHENYLKETONURIA (PKU). An enzyme deficiency present at birth that disrupts metabolism and causes brain damage; this rare inherited defect may be linked to the development of autism.

PHEOCHROMOCYTOMA. A tumor of the sympathoadrenal system that produces hypertension resulting in excessive headaches, sweating, and palpitation, apprehension, flushing of the face, nausea, and vomiting.

PHEROMONE HORMONES. Substances secreted in order to bring out a response from other members of the same species, particularly in regard to sexual arousal.

PHLEBITIS. Inflammation of a vein, often accompanied by swelling and the formation of blood clots.

PHLEGM. A thick secretion of mucus that may clog the airway passages; it is produced in response to irritation.

PHOBIA. In psychoanalytic theory, a psychological defense against anxiety in which the patient displaces anxious feelings onto an external object, activity, or situation.

PHONICS. A system to teach reading by teaching the speech sounds associated with single letters, letter combinations, and syllables.

PHOSPHOROUS. Referring to a chemical element occurring in all living cells.

PHOTODYNAMIC THERAPY (PDT). A therapy that uses light-activated drugs to destroy rapidly-dividing cells or new blood vessels in the eye.

PHOTORECEPTORS. Specialized nerve cells (rods and cones) in the retina that are responsible for vision.

PHOTOREFRACTIVE KERATECTOMY (PRK). A procedure that uses an excimer laser to reshape the cornea and permanently correct nearsightedness (myopia).

PHOTOSENSITIVITY. An abnormal reaction to light exposure caused by a disorder or resulting from the use of certain drugs.

PHOTOTOXIC. Causes a harmful skin reaction when exposed to sunlight.

PHYCOCYANIN. A protein found in spirulina that gives the alga its blue color. Phycocyanin has anti-inflammatory effects.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

PHYLLOQUINONE. An alternate name for vitamin K_1.

PHYSICAL MANIPULATION. The use of deep massage, spinal alignment, and joint manipulation to stimulate tissues.

PHYSIOLOGIC. Refers to physiology, particularly normal, healthy, physical functioning.

PHYTO. A prefix meaning, or pertaining to, a plant or plants (such as as in phytochemical, phytomedicinal, and phytotherapy).

PHYTOALEXIN. A compound made by some plants to fight various microbes, such as bacteria, viruses, and fungi, or as a response to environmental stress.

PHYTOESTROGEN. Any of several compounds found in plants that possess estrogen-like activity.

PHYTOHORMONES. Steroid hormones found in plants, including phytoestrogens and phytoandrogens.

PHYTOMEDICINALS. Medicinal substances derived from plants.

PHYTONADIONE. Another name for vitamin K_1. It is the form of vitamin K most often used to treat patients on anticoagulant therapy.

PHYTOPLANKTON. Very small free-floating aquatic plants found in plankton.

PHYTOSTEROLS. Plant-based oils that appear to have a cholesterol-lowering effect.

PHYTOTHERAPY. A form of treatment that uses plants or plant extracts either externally or internally.

PHYTOCHEMICALS. Beneficial chemical substances found in plants and fruits and thought to work synergistically in whole foods to provide disease protection and promote health.

PICA. An abnormal appetite or craving for non-food items; often such substances as chalk, clay, dirt, laundry starch, or charcoal.

PIGMENTED RETINAL EPITHELIUM. The dark-colored cell layer that supports the retina. It may thin or become detached with macular degeneration.

PINEAL GLAND. A gland about the size of a pea at the base of the brain that is part of the endocrine system.

PINNATE. Having leaflets arranged on each side of a common stalk.

PIOGLITAZONE. An anti-diabetic drug of the thiazolidinedione class. This drug increases the sensitivity of the cells to insulin, but is capable of causing severe adverse reactions, including congestive heart failure.

PIPERONYL BUTOXIDE. A liquid organic compound that enhances the activity of insecticides.

PIRIFORMIS. A muscle in the pelvic girdle, or hip bones, that is closely associated with the sciatic nerve.

PITTING EDEMA. Swelling caused by excess water that can be detected when the skin is pressed with a finger and an indentation remains after the finger is withdrawn.

PITUITARY GLAND. A small oval endocrine gland attached to the hypothalamus. The pituitary gland releases TSH, the hormone that activates the thyroid gland.

PLACEBO EFFECT. The ability of substances possessing no medicinal value to nonetheless achieve health benefits through the patient's belief and consequent optimism.

PLACEBO. A pharmacologically inactive substance given to placate a patient who supposes it to be a medicine.

PLACENTA. The organ that develops in the uterus during pregnancy that links the blood supplies of the mother and fetus.

PLANKTON. A mass of tiny animals and plants floating in the sea or in lakes, usually near the surface.

PLANTAR FASCIA. A tough fibrous band of tissue surrounding the muscles of the sole of the foot.

PLANTAR FASCITIS. Inflammation of the plantar fascia.

PLANTAR WARTS. Warts located on the sole of the foot.

PLAQUE. A buildup of fats, cholesterol, calcium, and fibrous tissue in the blood that tends to attach to and weaken artery walls.

PLASMA. A clear yellowish fluid that is a component of blood.

PLATELET AGGREGATION. The clumping together of blood cells, possibly forming a clot.

PLATELET. The smallest kind of blood cell, usually found in large quantities, that plays an important part in blood clotting. Also called thrombocytes.

PLEURISY. Inflammation of the pleura (lining of the chest cavity) usually caused by a lung infection.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

PLEXOPATHY. Compression of a nerve where it is part of a bundle of nerves called a plexus.

PNEUMOCYSTIS CARINII PNEUMONIA (PCP). An opportunistic infection caused by a fungus that is a major cause of death in patients with late-stage AIDS.

PNEUMONECTOMY. Surgical removal of an entire lung.

PNEUMONIA. A condition caused by bacterial or viral infection that is characterized by inflammation of the lungs and fluid within the air passages.

PNEUMONITIS. Inflammation of lung tissue.

PNEUMOTHORAX. Air inside the chest cavity, which may cause the lung to collapse. Pneumothorax is both a complication of pulmonary tuberculosis and a means of treatment designed to allow an infected lung to rest and heal.

PODIATRY. A medical specialty concerned with treating diseases, injuries, and malformations of the feet.

POINT OF VIEW. In a person with dyslexia, this term is used to describe the angle from which their mind's eye views an object. This point of view may be unanchored and moving about, as if several different people were telling what they see all at the same time.

POLLEN COUNT. The amount of pollen in the air; often broadcast on the daily news during allergy season. It tends to be lower after a heavy rain that washes the pollen out of the air and higher on warm, dry, windy days.

POLYCHREST. A homeopathic remedy that can be given for a wide variety of diseases and conditions.

POLYCYSTIC OVARIAN SYNDROME (PCOS). A condition in which the eggs are not released from the ovaries and instead form multiple cysts.

POLYGENIC. A trait or disorder that is determined by a group of genes acting together. Most human characteristics, including height, weight, and general body build, are polygenic.

POLYPHENOLS. Phytochemicals that act as an antioxidant, protecting cells against damaging free radicals.

POLYPHENOL. Acid compound in plants.

POLYP. A benign, tumor-like outgrowth.

POLYSACCHARIDE. A complex carbohydrate that characterizes most forms of carbohydrates.

POLYSOMNOGRAPHY. A technique for diagnosing sleep disorders with the use of a machine that records the pulse, breathing rate and other variables while the patient sleeps.

POLYUNSATURATED FATS. Non-animal oils or fatty acids rich in unsaturated chemical bonds not associated with the formation of cholesterol in the blood.

PORTAL HYPERTENSION. A type of hypertension that can be life threatening; veins enlarge in the stomach and esophagus, and the enlarged veins, called varices, can rupture and bleed massively.

POSITIVE IONS. Ionic particles having a positive electrical charge.

POSITIVE SYMPTOMS. Symptoms of schizophrenia that represent excesses or distortions of normal mental functions.

POSTPARTUM. Following childbirth.

POST-HERPETIC NEURALGIA (PHN). Persistent pain that occurs as a complication of a herpes zoster infection. Although the pain can be treated, the response is variable.

POSTPRANDIAL. After eating or after a meal.

POTENCY. The number of times that a homeopathic remedy has been diluted and succussed (shaken). In centesimal potencies, one part of the medicinal substance has been diluted with 99 parts of water or alcohol; in decimal potencies, the ratio is 1:9.

POTENTIATE. To intensify the effects of another herb or prescription medication.

POTENTIATION. A type of drug interaction in which one drug or herbal preparation intensifies or increases the effects of another.

POTENTIZATION. The process of increasing the power of homeopathic preparations by successive dilutions and succussions of a mother tincture.

POTENTIZE. To trigger effectiveness of a substance.

POUCHITIS. An acute infection in part of the intestines of patients who have undergone an ileostomy and a complete colectomy.

POULTICE. A soft cloth filled with a warm moist mass of grains, herbs, or other medications applied to sores or injured parts of the body.

PRAKRITI. An individual's unique dosha pattern.

PRANAYAMA. The yogic discipline of controlling the breath. It is sometimes used to refer to a form of yoga that emphasizes breathing exercises.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

PRANA. Basic life energy, found in food, air, and water, as defined in the East Indian Ayurveda and yoga philosophies.

PREBIOTICS. Non-digestible food ingredients that pass through the stomach into the intestines, where they selectively stimulate the growth and/or activity of healthy colonic bacteria.

PREDNISONE. A steroid, immune suppressing, anti-inflammatory medication used to treat the symptoms of rheumatoid arthritis, auto-immune, and many inflammatory conditions.

PREECLAMPSIA. A serious disorder of late pregnancy, in which the blood pressure rises, there is a large amount of retained fluids, and the kidneys become less effective and excrete proteins directly into the urine.

PREGNENOLONE. A steroid ketone formed by the oxidation of other steroids, such as cholesterol, a precursor to the hormone progesterone.

PREMATURE EJACULATION. Rapid ejaculation before the person wishes it, usually in less than one to two minutes after beginning intercourse.

PREMENSTRUAL SYNDROME (PMS). A group of symptoms, including nervous tension, irritability, tender breasts, and headache, experienced by some women in the days before menstruation, caused by changes in hormone levels.

PRESSURE POINTS. Specific locations on the feet and hands that correspond to nerve endings. Pressure on these locations are used to connect to and affect the organs and glands of the human body via the spinal cord.

PRIMARY ENERGY PATTERN. A spiral motion that radiates from the umbilicus; the energy pattern associated with a child in the womb.

PRIMARY HEADACHE. A headache that is not caused by another disease or medical condition.

PROANTHOCYANIDINS. Bioflavenoids found in cranberries, responsible for the fruit's effectiveness in preventing urinary tract infections.

PROBIOTICS. Beneficial bacteria in the gastrointestinal tract essential to healthy digestion. Probiotics produce certain essential vitamins and provide protection from bacteria, parasites, viruses, yeasts, and fungi while promoting the breakdown of waste and toxins.

PROCAINE PENICILLIN. An injectable form of penicillin that contains an anesthetic to reduce the pain of the injection.

PRODROMAL. Referring to warning symptoms that occur before the onset of a disease or disorder.

PRODROME. Symptoms that warn of the beginning of disease. The herpes prodrome consists of pain, burning, tingling, or itching at a site before blisters are visible.

PROGESTERONE. The hormone produced by the ovary after ovulation that prepares the uterine lining for a fertilized egg.

PROGNOSIS. Referring to the expected outcome of a disease and its treatment.

PROGRESSIVE MULTIFOCAL LEUKOENCEPHALOPATHY (PML). A disease caused by a virus that destroys white matter in localized areas of the brain. It is regarded as an AIDS-defining illness.

PROKINETIC. A drug that works to speed up the emptying of the stomach and the motility of the intestines.

PROLACTIN. A hormone secreted after delivery which stimulates the production of milk.

PROLAPSED. Referring to an organ fallen down from its normal body position.

PROLINE-RICH POLYPEPTIDE (PRP). A hormone found in colostrum that regulates the thymus gland and the immune system. It helps to make colostrum an effective treatment for autoimmune disorders and possibly heart disease. Proline is an amino acid.

PRONATION. The lowering or descending of the inner edge of the foot while walking.

PROPHYLACTIC. A preventative treatment.

PROPHYLAXIS. The prevention of disease by protective measures.

PROPOLIS. A sticky resin made by honeybees to seal the holes in their hives.

PROPRIOCEPTIVE. Pertaining to proprioception, or the awareness of posture, movement, and changes in equilibrium and the knowledge of position, weight, and resistance of objects as they relate to the body.

PROSTAGLANDIN. An unsaturated fatty acid in humans that helps to control smooth muscle contraction, blood pressure, inflammation, and body temperature.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

PROSTASIN. A blood protein that appears to be a reliable early indicator of ovarian cancer.

PROSTATECTOMY. Surgical removal of the prostate gland.

PROSTATE. A gland in males that secretes a fluid into the semen that improves the movement and viability of sperm.

PROSTATIC SECRETIONS. Normal secretions of the prostate gland intended to nourish and protect sperm, improving fertility.

PROSTATITIS. An inflammation or irritation of the prostate.

PROTEASE ENZYME. Any of a group of enzymes that help to break down proteins into smaller amino acid compounds. Bromelain belongs to this enzyme group.

PROTEIN. A complex molecule that contains carbon, hydrogen, oxygen, nitrogen, and usually sulfur, which forms an amino acid chain. Proteins are essential for tissue growth and repair.

PROTHROMBIN. One protein component of the cascade reaction which results in clot formation.

PROTOZOA. Single-celled microorganisms belonging to the subkingdom Protozoa that are more complex than bacteria. About 30 protozoa cause diseases in humans.

PROTON PUMP INHIBITOR (PPI). Medication that inhibits stomach acid production in severe heartburn.

PROVING. Case study of the effect of a homeopathic medicine.

PROVITAMIN A. A carotenoid, such as beta carotene, that can be converted into vitamin A in the liver.

PRURITUS. The medical term for itching.

PSEUDOCYST. A fluid-filled space that may arise in the setting of pancreatitis.

PSEUDOMEMBRANOUS COLITIS. A potentially life-threatening inflammation of the colon, caused by a toxin released by the Clostridium difficile bacterium that multiplies rapidly following antibiotic treatment.

PSORA. According to Hahnemann, the oldest and most universal miasm, responsible for human vulnerability to the majority of non-venereal chronic diseases.

PSORIASIS. A common chronic skin disorder that causes red patches anywhere on the body.

PSYCHOANALYSIS. A psychological theory and therapeutic method based on the idea that the mind works on conscious and unconscious levels and that childhood events have a psychological influence on people throughout their lives.

PSYCHODYAMIC. The scientific study of mental or conditional forces developing especially in early childhood and their effect on behavior and mental states.

PSYCHODYNAMIC THERAPY. A therapeutic approach that assumes improper or unwanted behavior is caused by unconscious, internal conflicts and focuses on gaining insight into these motivations.

PSYCHOMOTOR AGITATION. Disturbed physical and mental processes (e.g., fidgeting, wringing of hands, racing thoughts); a symptom of major depressive disorder.

PSYCHOMOTOR RETARDATION. Slowed mental and physical processes characteristic of a bipolar depressive episode.

PSYCHONEUROIMMUNOLOGY. The study of the relationships among mind, nervous system, and immune response.

PSYCHOSIS. A severe mental disorder characterized by delusions, hallucinations, and other evidence of loss of contact with reality. Some psychiatrists regard shamanic experiences as evidence of psychosis.

PSYCHOSOCIAL. Relating to both the psychological and the social aspects of a person.

PSYCHOSOMATIC ILLNESS. A condition in which unresolved emotional distress manifests as physical symptoms of illness.

PSYCHOTHERAPY. A medical treatment that seeks to resolve psychological traumas and conflicts, often by discussing them and emotionally reliving difficult events in the past.

PTYALISM. Excess salivation.

PUBERTY. The period of life in which boys' and girls' sexual organs begin to reach maturity and the ability to reproduce begins.

PUBOCOCCYGEAL (PC) MUSCLES. The muscles of the lower pelvic girdle, or pelvic floor, which support the bladder, urethra, and urethral sphincter; the muscle group at the neck of the bladder that acts as a spigot for controlling urine flow into the urethra, vagina, uterus, and rectum.

PULEGONE. The toxic chemical found in pennyroyal oil.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

PULMONARY FUNCTION TESTS. Tests that measure the amount and rate of air breathed in over a period of time. PFTs also measure how well the lungs move oxygen into the blood.

PULP. The soft innermost part of a tooth, containing blood vessels and nerves.

PULPITIS. Inflammation of the pulp of a tooth that involves the blood vessels and nerves.

PUMICE STONE. A volcanic rock that can be used to remove overgrowths and smooth the skin.

PUNCTURE. An injury caused by a sharp, narrow object deeply penetrating the skin.

PUPILLARY REACTION. The normal change in the size of the pupil due to the amount of ambient light. Under normal circumstances, both pupils respond simultaneously and equally.

PUPIL. The black hole in the center of the iris through which light enters on the way to the lens and retina.

PURGATIVE. Having a tendency to stimulate movement of the bowels.

PURGE. To rid the body of food and calories, commonly by vomiting or using laxatives.

PURIFIED PROTEIN DERIVATIVE (PPD). An extract of tubercle bacilli that is injected into the skin to find out whether a person presently has or has ever had tuberculosis.

PURINE. A substance found in foods that is broken down into urate and may contribute to hyperuricemia and gout.

PURPURA. A group of disorders characterized by purple, red, or brown areas of discoloration visible through the skin.

PUS. A thick yellowish or greenish fluid containing inflammatory cells. Usually caused by bacterial infection.

PUSTULAR. Resembling a blister and usually containing pus.

PUSTULE. A small raised pimple or blister-like swelling of the skin that contains pus.

PYELONEPHRITIS. Infection and inflammation of the kidney.

PYOGENIC. Capable of generating pus. Streptococci, staphylococci, and bowel bacteria are the primary pyogenic organisms.

PYRETHRIN. Naturally-occurring insecticide extracted from chrysanthemum flowers. It paralyzes lice so that they cannot feed.

PYRIDOXINE. Another name for vitamin B_6.

PYROGEN. A chemical circulating in the blood that causes a rise in body temperature.

Q

QIGONG. A Chinese exercise system (similar to t'ai chi) where people learn how to control the flow and distribution of qi (life energy); thought to improve health and harmony of mind and body.

QI. A Chinese medical term (also seen as Chi), pronounced *chee,* denoting active physiological energy; or a term more generally used in TCM for the life force.

QUADRIPLEGIA. Paralysis of all four limbs.

QUANTUM VACUUM (QV). A theory coined by physicists, which defines the interactions of energy that combine to form reality.

QUERCETIN. A flavonoid (chemical compound/biological response modifier) found in onions and garlic that may be a useful dietary supplement for asthma patients.

QUININE. One of the first treatments for malaria, quinine is a natural product made from the bark of the Cinchona tree. It was popular until being superseded by the development of chloroquine in the 1940s.

QUINOLONES. A group of antibiotics, often used to treat bacterial infections, that sometimes cause tendinitis.

QUINSY. Acute inflammation of the tonsils and throat area that often results in abscesses.

R

RADICULOPATHY. Compression of a nerve root at the point where it exits the spinal cord.

RADIAL KERATOTOMY (RK). A surgical procedure involving the use of a diamond-tipped blade to make several spoke-like slits in the peripheral (non-viewing) portion of the cornea to improve the focus of the eye and correct myopia by flattening the cornea.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

RADIATION THERAPY. Also called radiotherapy, the treatment for a disease involving carefully measured exposure to radiation.

RADICULAR. Pain that is caused by compression or impingement at the root of a nerve.

RADIODERMATITIS. Red, irritated, and inflamed skin caused by x rays, radiation treatment, or other radiation exposure.

RADIOISOTOPE. A form of a chemical element that emits radiation in the form of energy or small particles.

RANSON'S SIGNS. A set of 11 signs used to evaluate the severity of a case of pancreatitis.

RAPID EYE MOVEMENT SLEEP. A stage of sleep during which dreams occur. This stage usually alternates with a heavier, more restful stage of sleep.

RASH. A spotted, pink or red skin eruption that may be accompanied by itching and is caused by disease, contact with an allergen, food ingestion, or drug reaction.

RATES. The subtle emanations of energy which may be detected with radionic equipment.

RAW NUTRITION. A synonym for the Wigmore diet's emphasis on uncooked and living foods.

RAYNAUD'S SYNDROME. A vascular, or circulatory system, disorder that is characterized by abnormally cold hands and feet. This chilling effect is caused by constriction of the blood vessels in the extremities, and occurs when the hands and feet are exposed to cold weather.

REALITY TESTING. A phrase that refers to a person's ability to distinguish between subjective feelings and objective reality.

RECEPTOR. A cell-surface molecule that binds a specific hormone to produce a specific biological effect.

RECOMMENDED DIETARY ALLOWANCE (RDA). Also called Recommended Daily Allowance, the average daily dietary intake of a nutrient that is sufficient to meet the nutritional requirements of 97–98% of healthy individuals of a given age and gender.

RECTAL PROLAPSE. A condition where the lining of the rectum, the last part of the large intestine, protrudes through the anus.

RECTUM. The last 5 to 6 in (13-16 cm) of the intestine that leads to the anus. Waste is stored here until it is eliminated from the body through the anus.

RECURRENCE. The return of an active infection following a period of latency.

RED BLOOD CELL. Hemoglobin-containing blood cells that transport oxygen from the lungs to tissues. In the tissues, the red blood cells exchange their oxygen for carbon dioxide, which is brought back to the lungs to be exhaled.

REFERENTIAL. A type of delusion in which the person misinterprets items, minor occurrences, or other people's behavior as referring to them. Misinterpretations that are not as resistant to reality as a delusion are sometimes called ideas of reference.

REFERRED PAIN. Pain that is experienced in one part of the body but originates in another organ or area. The pain is referred because the nerves that supply the damaged organ enter the spine in the same segment as the nerves that supply the area where the pain is felt.

REFLEXOLOGY. Belief that reflex areas in the feet correspond to every part of the body, including organs and glands, and that stimulating the correct reflex area can affect the body part.

REFLUX. The backward flow of a body fluid or secretion. Indigestion is sometimes caused by the reflux of stomach acid into the esophagus.

REFRACTION. The turning or bending of light waves as the light passes from one medium or layer to another. In the eye it means the ability of the eye to bend light so that an image is focused onto the retina. Also, method of determining the optical status of eyes.

REFRACTIVE (EYE) SURGERY. Eye surgery to correct a defect in the eye's ability to focus accurately on an image.

REFRACTIVE POWER. The degree of refraction of an eye.

REGRESSION THERAPY. Traveling back and reliving emotions experience through prior lives while meditating.

REIKI. Form of therapeutic bodywork that strives to heal the body's energy field.

REISHI MUSHROOM. Another name for ganoderma.

RELAPSE. A return to a disease state, after recovery appeared to be occurring. In alcoholism, relapse refers to a patient beginning to drink alcohol again after a period of avoiding alcohol.

RELAXATION RESPONSE. The body's response to relaxation techniques, during which metabolism and stress levels decrease and immune response increases.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

REMEDY ANTIDOTE. Certain foods, beverages, prescription medications, aromatic compounds, and other environmental elements that counteract the efficacy of homeopathic remedies.

REMISSION. Disappearance of a disease as a result of treatment. Complete remission means that all disease is gone. Partial remission means that the disease is significantly improved by treatment, but residual traces of the disease are still present.

RENAL ARTERY STENOSIS. Disorder in which the arteries that supply blood to the kidneys constrict.

RENAL FAILURE. A state when the kidneys are so extensively damaged that they can no longer function.

REPERFUSION. The reintroduction of blood flow to organs or tissues after blood flow has been stopped for surgical procedures.

REPERTORY. Homeopathic reference book consisting of descriptions of symptoms. The process of selecting a homeopathic remedy from the patient's symptom profile is called repertorizing.

REPETITIVE STRAIN INJURY. Injury resulting from a repeated movement such as typing or throwing a ball. Also called Repetitive stress injury.

RESIDUAL VOLUME. The amount of air trapped inside the lungs as a result of incompletely exhaling.

RESIN. A sticky substance used for medicinal purposes and in the manufacture of varnishes, obtained from the bark of certain trees.

RESORPTION. The breakdown or dissolving of bone tissue by biochemical processes in the body.

RESTLESS LEGS SYNDROME (RLS). A disorder in which the patient experiences crawling, aching, or other disagreeable sensations in the calves that can be relieved by movement.

RETINOID. Any of the group of substances which comprise active vitamin A, including retinaldehyde, retinol, and retinoic acid. It includes synthetic vitamin A derivative used in the treatment of a variety of skin disorders.

RETROGRADE EJACULATION. A condition in which the semen spurts backward into the bladder.

RETROVIRUS. A virus that contains a unique enzyme called reverse transcriptase that allows it to replicate within new host cells.

RESVERATROL. A polyphenolic compound found in 72 varieties of plants, including wine grapes (especially the skins), berries, and peanuts.

RETCHING. The coordinated contraction of muscles as for vomiting but without the discharge of stomach contents.

RETINA. The inner, light-sensitive layer of the eye containing rods and cones. It is the nervous tissue membrane at the back of the eye, opposite the lens, that receives visual images and sends them to the brain via the optic nerve.

RETINITIS PIGMENTOSA. A group of inherited degenerative eye disorders characterized by deterioration of the retina, causing vision impairment and ultimately blindness, usually by the time the individual reaches middle age.

RETINOL EQUIVALENT (RE). 1 μg of all-*trans* retinol (vitamin A), 6 μg of all-*trans* beta carotene.

RETROGRADE MENSTRUATION. Menstrual flow that travels into the body cavity rather than out through the vagina.

RETT SYNDROME. An X-linked disorder of the nervous system found almost exclusively in girls. Children with Rett's syndrome often develop bruxism, for reasons as yet unknown.

REYE'S SYNDROME. Acute, often fatal childhood syndrome marked by encephalopathy (brain disease), hepatitis (inflammation of the liver), and fatty accumulations in the viscera (many of the soft parts and internal organs). Often associated with taking aspirin.

RHABDOMYOLYSIS. The necrosis or disintegration of skeletal muscle.

RHABDOVIRUS. A type of virus named for its rod- or bullet-like shape.

RHEUMATIC FEVER. A heart disease that is a complication of a strep infection.

RHEUMATIC. Refers to any of a variety of disorders marked by inflammation, deterioration, or metabolic damage of the body's connective tissues, especially the joints.

RHEUMATISM. A popular term for any disorder that causes pain and stiffness in muscles and joints and fibrous tissues, including minor aches and twinges, as well as disorders such as rheumatoid arthritis, osteoarthritis, and polymyalgia rheumatica.

RHEUMATOID ARTHRITIS. A painful autoimmune condition, with inflammation and swelling in the joints, sometimes accompanied by spasms in nearby muscles, and frequently resulting in loss of joint function. Rheumatoid arthritis occurs two to three more times in women than men.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

RHEUMATOID FACTOR. Antibody found in approximately 80% of patients with adult onset rheumatoid arthritis. When RF is identified in children with juvenile rheumatoid arthritis, there is increased risk of joint damage. The child may require more aggressive treatment.

RHEUMATOLOGY. The study of disorders characterized by inflammation, degeneration of connective tissue, and related structures of the body. These disorders are sometimes collectively referred to as rheumatism.

RHINOPHYMA. Long-term swelling and overgrowth in skin tissue of the nose that leaves it with a knobby, bulb-like look.

RHINOVIRUS. A virus that infects the upper respiratory system and causes the common cold.

RHIZOME. A fleshy plant stem that grows horizontally under or along the ground. It is distinguished from a true root by stem buds or nodes that develop into new shoots. Roots are sent out below this stem and leaves or shoots are sent out above it.

RHODOPSIN. The light-sensitive photopigment contained in rods discriminates between different levels of light intensity.

RHOMBOHEDRAL. A parallelepiped whose edges are all of equal length.

RHYTHM METHOD. The oldest method of contraception with a very high failure rate, in which partners refrain from having sex during ovulation. Ovulation is predicted on the basis of a woman's previous menstrual cycle.

RICIN. An extremely poisonous protein derived from castor beans.

RICKETS. A condition caused by the deficiency of vitamin D, calcium, and usually phosphorus, seen primarily in infancy and childhood, and characterized by abnormal bone formation.

RIGHT BRAIN. The right cerebral hemisphere, which controls activity on the left side of the body in humans. It is associated with spatial and nonverbal concepts, intuition, emotions, and creativity. Labyrinth walking is thought to stimulate the right brain.

RINGWORM. A fungal skin infection that predominantly affects children. The condition is characterized by reddish, scaly rings on the skin.

RODS. Photoreceptors, located in the retina of the eye, that are highly sensitive to low levels of light.

ROLFING. Developed by Dr. Ida Rolf, rolfing uses deep tissue massage and movement to bring the body into correct alignment. It is based on the belief that proper alignment of various parts of the body is necessary for physical and mental health.

ROTAVIRUS. The primary infectious cause of diarrhea in infants and children.

ROUGHAGE. Another name for dietary fiber.

ROYAL JELLY. Special substance secreted by bees to feed the young queen bees.

RUBELLA. Also known as German measles. When a woman contracts rubella during pregnancy, her developing fetus may be damaged. One of the problems that may result is autism.

RUMINANT. Any of various hoofed, even-toed, usually horned mammals of the suborder Ruminantia, such as cattle, sheep, goats, deer, and giraffes.

RUSSELL'S SIGN. Scraped or raw areas on the patient's knuckles, caused by self-induced vomiting.

RUTIN. A bright greenish-yellow flavonoid (plant pigment) found in ruta that has been credited with antioxidant properties.

S

SACRAL NERVES. The five pairs of nerves that arise from the lowermost segments of the spinal cord and control bladder, bowel, and pelvic functions. Stimulation of the sacral nerves by an implanted device is a newer treatment for urinary incontinence.

SACRO-ILIAC. The joint at which the upper hip bone joins the backbone to the pelvis.

SAIKOSAPONINS. Chemical compounds found in bupleurum that have anti-inflammatory effects.

SALICIN. A bitter-tasting water-soluble chemical found in willow bark that has analgesic properties.

SALICYLIC ACID. An agent prescribed in the treatment of hyperkeratotic skin conditions and fungal infections. It is a crystalline substance that is the active ingredient in aspirin.

SALIVARY DUCT. Tube through which saliva is carried from the salivary gland to the mouth.

SALIVARY GLAND. Gland in which saliva is formed.

SALVE. A substance that is applied to wounds or sores; A topical ointment or paste sometimes made by

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

blending a substance with olive oil, then mixing it with melted beeswax.

SAMANA. Life sustaining energy of the smaller intestine; the fourth of the five airs of Ayurvedic philosophy; the life force governing side-to-side motion.

SAME. An active compound made from methionine and adenosine triphosphate (ATP), an enzyme found in muscle tissue.

SANSKRIT. The classical literary language of India. It is considered the oldest living language of the Indo-Aryan family.

SAPONIN. A glucoside compound found in parsley, soapwort, and other plants, that forms a stable foam when added to water. Saponin is used commercially in beverages. Pl.: Saponins

SARCOIDOSIS. A disease of unknown etiology, which causes widespread lesions that may affect any organ or tissue of the body.

SARCOMA. A malignant growth in the connective tissue, bone, cartilage or muscle; usually the most lethal form of cancer.

SASHIMI. A traditional Japanese preparation of rice, fish, shell fish, mollusks, and other fish products, served with pickled vegetables.

SATURATED FAT. Fat that is usually solid at room temperature, found mainly in meat and dairy products but also in such vegetable sources as nuts, some seeds, and avocados.

SCABIES. A contagious rash caused by the *Sarcoptes scabiei* mite, which burrows into the upper layer of the skin in order to lay eggs. Scabies is characterized by intense itching.

SCALE. Any thin, flaky, plate-like piece of dry skin.

SCHEMAS. Fundamental core beliefs or assumptions that are part of the perceptual filter through which people view the world. Cognitive-behavioral therapy seeks to change maladaptive schemas.

SCHISTOSOMIASIS. Also called bilharziasis, this is a disease caused by bodily infestation of blood flukes.

SCHIZOPHRENIA. Schizophrenia is a psychotic disorder that causes distortions in perception (delusions and hallucinations), inappropriate moods and behaviors, and disorganized or incoherent speech and behavior.

SCHNEIDERIAN SYMPTOMS. Another name for first-rank symptoms of schizophrenia.

SCIATICA. Pain along the course of the sciatic nerve, running from pelvis down the back of leg to the foot caused by a compression or irritation of the fifth lumbar spinal root.

SCLERA. A dense white fibrous membrane that, together with the cornea, forms the outer covering of the eyeball.

SCLERODERMA. Immune system disorder where collagen (a protein found in connective tissue, bone, skin, etc.) forms in an abnormally rigid manner. Can affect many body organs and tissues such as the heart, lungs, gastrointestinal tract, joints, kidneys, and skin.

SCOLIOMETER. A tool for measuring trunk asymmetry; it includes a bubble level and angle measure.

SCOLIOSIS. A lateral curvature of the spine.

SCROFULA. Tuberculous inflammation of the lymph nodes of the neck in children, caused by bacteria in cattle; also called cervical adenitis.

SCROFULODERMA. Abscesses on the skin associated with tuberculosis and caused by mycobacteria.

SCRUPULOSITY. A spiritual disorder characterized by perfectionism and obsessive fears of God's punishment. Some patients with OCD also develop religious scrupulosity.

SCURVY. A disease characterized by loose teeth, and bleeding gums and mouth, caused by a lack of ascorbic acid (vitamin C) in the diet.

SEASONAL AFFECTIVE DISORDER (SAD). A mood disorder caused by decreased daylight during winter, SAD is characterized by depression, weight gain, and sleepiness during the winter months. An estimated 4–6% of the population of Canada and the northern United States suffers from SAD.

SEBACEOUS GLANDS. The oil- or grease-producing glands of the body.

SEBORRHEIC DERMATITIS. An inflammatory condition of the skin of the scalp, with yellowish greasy scaling of the skin and itching. Other areas of the body may also be affected. Mild seborrheic condition is called dandruff.

SEBUM. An oily skin moisturizer produced by sebaceous glands.

SECONDARY HEADACHE. A headache that is caused by another disease or disorder.

SECONDARY INFECTION. An infection by a microbe that occurs during an infection by a different kind of microbe.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

SEDATIVE. A drug, herb, or preparation that has a calming and relaxing effect. Sedatives are used to aid sleep and ease pain and are often given as mild tranquilizers.

SEDIMENTARY. Formed by deposits of sediment, or material that settles on the bottom in a body of water.

SELECTIVE ESTROGEN RECEPTOR MODULATOR. A hormonal preparation that offers the beneficial effects of hormone replacement therapy (HRT) without the increased risk of breast and uterine cancer associated with HRT.

SELECTIVE SEROTONIN REUPTAKE INHIBITOR (SSRI). A class of antidepressant drugs that block the reabsorption of serotonin by nerve cells in the brain, thus raising the levels of serotonin. SSRIs include fluoxetine (Prozac), sertraline (Zoloft), and paroxetine (Paxil).

SELENIUM. A mineral supplement with antioxidant properties that may be useful for reducing breast pain and tenderness associated with fibrocystic breast disease. The recommended daily allowance of selenium is 70 mcg for men and 55 mcg for women.

SELF-BREEMA. A personalized form of Breema bodywork that the individual performs on his or her own body, without an instructor as partner. It is intended to supplement Breema bodywork treatment sessions with an instructor.

SEMEN. A whitish, opaque fluid containing sperm released by a male at ejaculation.

SEMINAL VESICLES. The pouches above the prostate that store semen.

SENESCENCE. Aging.

SENILE PLAQUES. Abnormal structures, composed of parts of nerve cells surrounding protein deposits, found in the brains of persons with Alzheimer's disease.

SENSITIZATION. The process by which the immune system becomes sensitive or hypersensitive to a specific chemical and reaction to it when re-exposed.

SENSORINEURAL HEARING LOSS. Hearing loss caused by damage to the nerves or parts of the inner ear that control the sense of hearing.

SENSORY AWARENESS. Bringing attention to the sensations of tension and/or release in the muscles.

SENSORY ROOT GANGLION. A bundle of nerves that help conduct physical sensations.

SEPSIS. Bacterial poisoning causing destruction of body tissues; blood poisoning by pus-forming microorganisms or toxins.

SEQUELA. An abnormal condition resulting from a previous disease or disorder. Pl.: Sequelae.

SERIAL CASTING. A series of casts designed to gradually move a limb into a more functional position, as opposed to doing it all at once with one cast, as would be done in setting a broken bone.

SEROTONIN DOPAMINE ANTAGONISTS (SDAS). A second generation of antipsychotic drugs, also called atypical antipsychotics. SDAs include clozapine (Clozaril), risperidone (Risperdal), and olanzapine (Zyprexa).

SEROTONIN SYNDROME. A potentially life-threatening reaction to increased levels of the neurotransmitter serotonin in the central nervous system, most often as a result of drug interactions. It is characterized by agitation, confusion, delirium and perspiration.

SEROTONIN. A chemical compound that acts as a neurotransmitter, conveying information within the nervous system and regulating mood, emotion, sleep and appetite. Too much serotonin may be responsible for migraines or nausea.

SERUM. Clear, fluid part of the blood.

SESSILE. A botanical term to describe a leaf that emerges from the plant stem without a stalk.

SET POINT. In medicine, a term that refers to body temperature, body weight, or other measurements that a human or other organism tries to keep at a particular value. The Shangri-la diet is said to work by lowering the dieter's set point for body weight.

SEXUAL AROUSAL DISORDER. The inhibition of the general arousal aspect of sexual response.

SEXUALLY TRANSMITTED DISEASES (STDS). A group of diseases that are transmitted by sexual contact. In addition to gonorrhea, this group generally includes chlamydia, HIV (AIDS), genital herpes, genital warts, and syphilis.

SHAMAN. In certain indigenous tribes or groups, a person who acts as an intermediary between the natural and supernatural worlds. Shamans are regarded as having the power or ability to cure illnesses.

SHANGRI-LA. A utopia; a mythical place in the Himalayas where life approaches perfection, depicted in a 1933 novel by James Hilton.

SHEEP BLOOD AGAR PLATE. A petri dish filled with a nutrient gel containing red blood cells that is used to

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

detect the presence of streptococcal bacteria in a throat culture. Streptococcal bacteria will break down the red blood cells.

SHEN NONG. A legendary emperor, he was called the "Divine Farmer" of China. Shen Nong made many discoveries concerning herbal medicine and cataloged 365 species of medicinal plants. An early herbal text, written around 400 A.D.

SHEN. One of the five body energies. It influences mental, spiritual, and creative energy. Shen tonics address deficiencies in this type of energy.

SHIATSU. Japanese form of acupressure massage.

SHINGLES. An disease caused by an infection with the *Herpes zoster* virus, the same virus that causes chickenpox. Symptoms of shingles include pain and blisters along one nerve, usually on the face, chest, stomach, or back.

SHOCK WAVE THERAPY. A method of treating tennis elbow and other musculoskeletal injuries that involves directing bursts of high-pressure sound waves at the affected area.

SHOCK. A condition in which the amount of blood circulating in the body is inadequate to meet the body's needs. Shock can be caused by certain diseases, serious injury, or blood loss. Symptoms include rapid pulse, pale skin and bluish lips and fingernails.

SHORT-CHAIN FATTY ACIDS. End products of bacterial fermentation derived from the breakdown of complex carbohydrates by anaerobic micro-organisms in the large intestine.

SIALAGOGUE. An agent that increases salivation.

SICK BUILDING SYNDROME. An illness related to multiple chemical sensitivity in which a person develops symptoms in response to chronic exposure to airborne environmental chemicals found in a tightly sealed building.

SICKLE-CELL ANEMIA. A genetic malformation of red blood cells that can cause periodic crises in sufferers.

SIDESTREAM SMOKE. The smoke that is emitted from the burning end of a cigarette or cigar or that comes from the end of a pipe. Along with exhaled smoke, it is a constituent of secondhand smoke.

SIGMOID COLON. The final portion of the large intestine which empties into the rectum.

SILICOSIS. A serious lung disease caused by prolonged inhaling of dust from stone or sand that contains silicon dioxide; also called grinder's disease or potter's rot.

SIMPLE. A type of leaf that is not divided into parts.

SINUSITIS. An infection of the sinus cavities characterized by pain in the eyes and cheeks, fever, and difficulty breathing through the nose.

SINUS TRACT. A channel connecting a body part with the skin outside.

SITZ BATH. From the German word for "sit," a bathtub shaped like a chair allowing a person to bathe while sitting so only the hips and buttocks are immersed; or, A warm water bath, sometimes including medications or herbs, to bathe the pelvic area.

SJÖGREN'S SYNDROME. An autoimmune disorder in which the body's white cells attack the glands that produce saliva and tears. Dry mouth is a core symptom of Sjögren's syndrome, which effects mostly older women.

SKIN GRAFT. Surgery used to cover burned or injured areas of the body with new skin.

SKIN LESION BIOPSY. A procedure in which a sliver of tissue from the skin is removed in order to examine it and establish a diagnosis.

SLEEP APNEA. A condition in which a person stops breathing while asleep. These periods can last up to a minute or more and can occur many times each hour. In order to start breathing again, the person must become semi-awake.

SLEEP DISORDER. Any condition that interferes with sleep. As of 2008, at least 84 have been identified, according to the American Sleep Disorders Association.

SLEEP LATENCY. The amount of time that it takes a person to fall asleep.

SLEEP PARALYSIS. An abnormal episode of sleep in which the patient cannot move for a few minutes, usually occurring on falling asleep or waking up. Often found in patients with narcolepsy.

SLIT LAMP. A special viewing device used by eye specialists to examine the eye for cataracts.

SODIUM–POTASSIUM PUMP. A system responsible for the diffusion of sodium ions and potassium ions across cell membranes.

SOFT PALATE. The structure at the roof of the mouth that separates the mouth and the pharynx.

SOYBEAN. The seed of the plant *Glycine max*.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

SPASMOLYTIC. A substance or medication that relieves cramping.

SPASM. Involuntary contraction of a muscle.

SPASTIC. Describes a condition in which the muscles are rigid, posture may be abnormal, and fine motor control is impaired.

SPAWN. Grain, often rye or millet, that has been inoculated with mushroom spores and is used to grow mushrooms commercially.

SPECIFIC PHOBIA. An intense but irrational fear of a specific place, object, or animal. Common specific phobias include fear of spiders, snakes, or dogs; fear of flying or highway driving; fear of blood; and fear of elevators and other closed spaces.

SPERMATOGENESIS. The process by which sperm develop to become mature sperm, capable of fertilizing an ovum.

SPERMATORRHEA. Involuntary discharge of semen without an orgasm occurring; sperm leakage.

SPERM. The reproductive cell of the male that contains genetic information and participates in the act of fertilization of an ovum.

SPHYGMOMANOMETER. An instrument used to measure blood pressure. It consists of an inflatable cuff and a manometer, the part that measures pressure.

SPINAL STENOSIS. Usually the result of arthritis of the spine, causing narrowing of the spinal canal in the lumbar vertebrae. The narrowing puts pressure on the roots of the sciatic nerve. It may cause sciatica.

SPINES. These sharp needle-like protrusions serve the plant in three important ways. They conduct water, reduce water loss, and protect the plant from herbivores.

SPIROCHETE. A type of bacterium with a long, slender, spiral shape. The bacteria that cause Lyme disease and syphilis, for example, are spirochetes.

SPIRULINA. A genus of blue-green algae that is sometimes added to food to increase its nutrient value. It is rich in vitamins, minerals, essential fatty acids, and antioxidants.

SPLEEN. A large lymphatic organ, located just under the left rib cage, that filters the blood. In TCM, Spleen refers to all organs considered necessary for extracting and using nutrients including the pancreas, large muscles, lips, eyelids, lymph system, spleen.

SPLENECTOMY. Surgical removal of the spleen.

SPONDYLITIS. An inflammation of the spine.

SPONDYLOSIS. Arthritis of the spine.

SPORE. The asexual reproductive body produced by simple organisms such as fungi, ferns, or other nonflowering plants.

SPRUE. A disorder in which the absorption of nutrients from the diet by the small intestine (malabsorption) is impaired, resulting in malnutrition. Two forms of sprue exist: tropical sprue and celiac sprue.

SPUTUM. Material produced within the alveoli in response to an infectious or inflammatory process and coughed up from the passageways of the lungs, including saliva, mucus, or phlegm.

SQUAMOUS EPITHELIAL CELLS. The flat cells that make up the surface layer of skin and mucous membranes.

STAGE. A term used to describe the size and extent of cancer.

STAGING. Using various methods of diagnosis to determine the extent of disease present in an individual. Staging is important as a way of determining the appropriate type of treatment for a particular disease.

STAMEN. The male fertilizing organ of flowering plants, bearing pollen.

STANDARDIZED HERBAL EXTRACT. An herbal product created by using water or alcohol to dissolve and concentrate the active ingredients, which are then quantified for medicinal pharmacological effect.

STANDARDIZED. To cause to conform to a standard. In medicine and pharmacy, this means that a given weight of an herb will contain a standardized percentage or weight of the active principle.

STAPHYLOCOCCUS. Any of several species of spherical bacteria that occur in groups of four or in irregular clusters. They can infect various parts of the body, especially the skin and mucous membranes.

STARCH. Complex carbohydrates.

STASIS. Stagnation in the flow of blood or any body fluid.

STATIN. An HMG-CoA reductase inhibitor, this class of drugs is used primarily, but not exclusively, to assist in the lowering of cholesterol levels.

STEAM DISTILLATION. A process of extracting essential oils from plant products through a heating and evaporation process.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

STEROID. A family of compounds that share a similar chemical structure. This family includes estrogen and testosterone, vitamin D, cholesterol, and the drugs cortisone and prednisone.

STIGMASTEROL. A plant steroid that is extracted from soybeans and used to produce natural human hormones.

STIGMA. The thread-like filament found in the center of a flower where pollen collects.

STIMULANT LAXATIVES. Powerful laxatives that increase the frequency of bowel movements by stimulating muscle contractions that accelerate the passage of stool.

STIMULUS. Anything capable of eliciting a response in an organism or a part of that organism.

STOMACHIC. A medication or herbal preparation given to improve the functioning of the digestive system. It can tonify the stomach, sharpen or improve the appetite, or stimulate digestion.

STRABISMUS. Failure of the two eyes to direct their gaze at the same object simultaneously due to muscle imbalance.

STRAWBERRY TONGUE. A sign of scarlet fever in which the tongue appears to have a red coating with large raised bumps.

STREET DRUG. A substance purchased from a drug dealer. It may be a legal substance, sold illicitly (without a prescription, and not for medical use), or it may be a substance that is illegal to possess.

STREPTOCOCCUS PYOGENES. A common bacterium that causes strep throat and can also cause tonsillitis.

STREPTOCOCCUS. A genus of sphere-shaped bacteria that can cause a wide variety of infections.

STRESS HARDINESS. A personality characteristic that enables persons to stay healthy in stressful circumstances. It includes belief in one's ability to influence the situation; being committed to or fully engaged in one's activities; and having a positive view.

STRESS MANAGEMENT. A category of popularized programs and techniques intended to help people deal more effectively with stress.

STRESSOR. A stimulus or event that provokes a stress response in an organism. Stressors can be categorized as acute or chronic, and as external or internal to the organism.

STRESS URINARY INCONTINENCE (SUI). Urine leakage upon straining, coughing, laughing, or sneezing.

STRIATUM. A part of the basal ganglia, a deep structure in the cerebral hemisphere of the brain. Abnormally high levels of dopamine in the striatum are thought to be related to the delusions and hallucinations of schizophrenia.

STRIDOR. A noisy wheezing sound during breathing that may indicate an airway obstruction.

STROKE. A hemorrhage into the brain, formation of a clot in an artery, or rupture of an artery that causes sudden loss of consciousness. It may cause paralysis, coma, speech problems, and dementia.

STRUCTURAL INTEGRATION. The term used to describe the method and philosophy of life associated with Rolfing. Its fundamental concept is the vertical line.

STRYCHNINE. A colorless, crystalline poison obtained from the seeds of *Nux vomica.*

SUBCHONDRAL CYSTS. Fluid-filled sacs that form inside the marrow at the ends of bones as part of the development of OA.

SUBCUTANEOUS. Under the skin.

SUBDURAL HEMATOMA. Bleeding into the space between the outermost and middle membranes covering the brain.

SUBLINGUAL. Taken underneath the tongue.

SUBLUXATION. A partial or incomplete dislocation of the bones that form a joint, or misalignment between vertebrae that structurally and functionally impairs nerve function.

SUBSTANTIA NIGRA. Movement control centers of the brain containing dopamine-producing cells.

SUCCIMER (CHEMET) OR DMSA. A drug used to remove excess lead from the body.

SUCCULENT. Any type of drought-tolerant plant that stores water in its fleshy parts, such as stems and leaves.

SUCCUSSION. A process integral to the creation of a homeopathic remedy in which a homeopathic solution is struck against a firm surface. This is performed to thoroughly mix the substance and magnify its healing properties, a process called potentization.

SUET. Refers to the hard fat found around cattle and sheep kidneys and loins; it is used in cooking.

SULCUS. A v-shaped crevice where the gum line meets the teeth. A healthy sulcus measurement is 3 mm. As gum tissues become diseased, this crevice can

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

measure 6 mm and above, allowing bacteria to develop.

SULFADOXONE/PYRIMETHAMINE (FANSIDAR). An antimalarial drug developed in the 1960s. It is the first drug tried in some parts of the world where chloroquine resistance is widespread. It has been associated with severe allergic reactions due to its sulfa component.

SUNSCREEN. Products that block the damaging rays of the sun. Good sunscreens contain either para-aminobenzoic acid (PABA) or benzophenone, or both. Sunscreen protection factors range from 2-70.

SUPERANTIGEN. A type of bacterial toxin that triggers abnormal activation of T-cells, which regulate the body's response to infected or malignant cells. *S. aureus* is responsible for the production of a number of different superantigens.

SUPERFICIAL TUMOR. A tumor that has not penetrated deep into the body organ.

SUPERIOR HERB. The highest of three categories of herbal plants in traditional Chinese medicine. A superior herb is a non-toxic tonic that acts safely over time to assist the body in self-healing by eliminating toxins and nourishing, strengthening, and supporting cells,

SUPERIOR MESENTERIC ARTERY SYNDROME. A condition in which a person vomits after meals due to blockage of the blood supply to the intestine.

SUPPORTIVE. An approach to psychotherapy that seeks to encourage the patient or offer emotional support to him or her, as distinct from insight-oriented or educational approaches to treatment.

SUPPOSITORY. Any treatment prepared to be inserted into the vagina or the rectum.

SUSHI. A traditional Japanese preparation of food wherein vinegared rice, vegetables, and fish or fish products, are wrapped in *nori* seaweed, cut, and served.

SWIMMER'S EAR. An inflammation or infection of the ear canal due to overexposure to water.

SWIMMER'S ITCH. An allergic skin inflammation caused by a sensitivity to flatworms that die under the skin, causing an itchy rash.

SYMBIOTIC. The living relationship of two separate organisms. Symbiotic relationships can be mutually beneficial, beneficial to one partner and not harmful to the other partner, or beneficial to one partner and harmful to the other partner.

SYMPTOM. In homeopathy, a positive sign of the body's self-defense and self-healing that assists the practitioner to choose the correct remedy. Symptoms include the patient's emotional state, physical symptoms and psychological characteristics.

SYNCOPE. Dizziness or brief loss of consciousness resulting from an inadequate flow of oxygenated blood to the brain.

SYNDROME. Common features of a disease or features that appear together often enough to suggest they may represent a single, as yet unknown, disease entity.

SYNERGISTIC EFFECT. A compounding effect greater than the effect otherwise expected from adding the involved components.

SYNERGISTIC. Describes an association which improves the effectiveness of members of the association.

SYNERGY. A condition in which the action of a sum of parts is greater than the individual actions of those parts added together, something like "one plus one is greater than two."

SYNOVIAL FLUID. Fluid surrounding the joints which acts as a lubricant, reducing the friction between the joints.

SYNOVIAL JOINT. A type of joint that allows articular bones to move.

SYNOVIAL MEMBRANE. A layer of connective tissue that lines the insides of joints, tendon sheaths, and bursae. The synovial membrane produces synovial fluid, which has a lubricating function.

SYNOVIA. A clear, somewhat sticky lubricating fluid secreted by membranes that surround the joints.

SYRUP. An herbal preparation that is made generally by boiling the herb with water, adding sugar as a preservative, and boiling until it thickens. The syrup may be stored.

SYSTEMIC LUPUS ERYTHEMATOSUS (SLE). A chronic, inflammatory, autoimmune disorder in which the individual's immune system attacks, injures, and destroys the body's own organs and tissues. It may affect many organ systems, including the skin, joints, lungs, heart, and kidneys.

SYSTEMIC. Afflicting an entire body system or the body in general; the opposite of localized.

SYSTOLIC BLOOD PRESSURE. Blood pressure when the heart contracts (beats).

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

T

TABES DORSALIS. A progressive deterioration of the spinal cord and spinal nerves associated with tertiary syphilis.

TABLEWORK. The passive phase of Trager therapy, in which the practitioner uses gentle and noninvasive movements to allow the client to relax deeply and experience physical movement as free and effortless.

TACRINE. A drug commonly prescribed for Alzheimer's disease that provides temporary improvement in cognitive functions for some patients with mild-to-moderate forms of the disease.

TACTILE SENSE. Receiving information about the body and the environment via contact with the skin. When this is lost through illness, a person may receive injuries without being aware of it.

TACTILE. The perception of touch.

T'AI CHI. An ancient Chinese martial art consisting of slow, rhythmic movements to relieve stress, anxiety, and depression, and provide cardiovascular, respiratory, and pain relief benefits. Qigong is a form of T'ai chi.

TAMOXIFEN. A drug used to treat cancer.

TANNER'S STAGES. Stages of physical development in childhood, adolescence and adulthood. They were first described by Drs. Marshall and Tanner in 1969, and are also referred to as pubertal stages 1 through 5.

TANNIN. An acidic substance that occurs naturally in plants. Tannins are phenolic compounds that help form proteins, alkaloids and glucosides from a solution. They are used to tan leather, color fabrics and ink and are found in tea and coffee.

TAOISM. A philosophy of life based on the writings of Chinese philosopher Lao-tse who lived about 500 B.C. Taoism considers humans in relation to the whole universe, advocates simplicity, and influenced traditional Chinese medicine.

TAPOTEMENT. A group of massage techniques in which the therapist strikes the soft tissues with the sides of the hands or with loose fists. It is intended to invigorate and tone the body.

TARDIVE DYSKINESIA (TD). A condition that involves involuntary movements of the tongue, jaw, mouth, or face or other groups of skeletal muscles that usually occurs either late in antipsychotic therapy or even after the therapy is discontinued. It may be irreversible.

TARGET TISSUES. Tissues specifically receptive to a given hormone.

T CELL. White blood cells that stimulate cells to create and release antibodies. They are a type of lymphocyte that develops in the thymus gland, circulates in the blood and lymph, and regulates the body's immune response to infected or malignant cells.

TD. The abbreviation for tetanus and diptheria vaccine.

TELANGIECTASIA. Small blood veins visible at the surface of the skin of the nose and cheeks.

TELLINGTON TOUCH (TTOUCH). A form of energy therapy that combines aspects of the Feldenkrais method of bodywork with aura therapy.

TEMPEH. A dense, high-fiber fermented cake of soybeans and other grains; it is a staple food in Indonesia.

TEMPORAL BONES. The compound bones that form the left and right sides of the skull.

TEMPOROMANDIBULAR JOINT DISORDER. Inflammation, irritation, and pain of the jaw caused by improper opening and closing of the temporomandibular joint. Other symptoms include clicking of the jaw and a limited range of motion.

TEMPOROMANDIBULAR JOINT (TMJ). The jaw joint formed by the mandible (lower jaw bone) moving against the temporal bone of the skull.

TENDINITIS. Inflammation of tissues that connect muscles to bones. Tendinitis is usually caused by strain or an injury. Also called tendonitis.

TENDON. A band or cord of thick white fibrous tissue that connects a muscle to bone.

TENOTOMY. Surgical procedure that cuts the tendon of a contractured muscle to allow lengthening.

TERPENES. Hydrocarbons found especially in essential oil.

TEST ANXIETY. A name for the stress and anxiousness that commonly occur in students before they take exams.

TESTICLE. One of the two male sex glands, located in the scrotum, where sperm and hormones are produced.

TESTOSTERONE. Male hormone produced by the testes and (in small amounts) in the ovaries. Testosterone is responsible for some masculine secondary sex

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

characteristics such as growth of body hair and deepening voice.

TETANUS. A potentially fatal infection of the central nervous system, found in wounds.

TETANY. A disorder of the nervous system characterized by muscle cramps, spasms of the arms and legs, and numbness of the extremities. It is a symptom of an abnormality in calcium metabolism or very low calcium levels in the body.

THALAMUS. An important relay center for sensory signals in the cerebral cortex of the brain.

THALAMOTOMY. Surgery that destroys a small amount of tissue in the thalamus to control Parkinson's Disease tremors.

THALASSEMIA. A group of several genetic blood diseases characterized by absent or decreased production of normal hemoglobin. Individuals who have thalassemia have to undergo frequent blood transfusions and are at risk for iron overload.

THEOBROMINE. A stimulant that occurs naturally in chocolate as well as in kola nut. Foods and drinks containing theobromine are poisonous to domestic pets.

THERAPEUTIC INDEX. The ratio of the benefits to be obtained from a drug compared to the risks of using that drug.

THERAPEUTIC TOUCH (TT). An American form of energy therapy based on the ancient tradition of the laying-on of hands. TT is thought to work by removing energy blockages or disturbances from the patient's aura.

THERMAL BURN. Tissue injury caused by extreme heat.

THERMOGENESIS. The production of heat, especially within the body.

THERMOGRAM. The image created by thermography.

THERMOLOGIST. A professional trained in reading thermograms.

THIAZOLADINEDIONES. A class of drugs typically used to treat diabetes and insulin resistance.

THIRD EYE. A term used to refer to the inner eye or eye of the mind. Opening the third eye refers to admission to a new level of consciousness.

THROMBOPHLEBITIS. Inflammation of a vein together with clot formation.

THORACIC OUTLET SYNDROME. Spasticity of the muscles of the upper back, neck, and/or shoulders.

THROMBOCYTE. Also called a platelet. Thrombocytes help the blood to clot so that wounds can heal.

THROMBOTIC. Pertaining to a blood clot formed within an intact blood vessel as opposed to a clot formed to seal the wall of a blood vessel after an injury.

THROMBUS. A blood clot that forms in the heart or blood vessel and remains there.

THRUSH. A yeast infection of the mouth characterized by white patches on the inside of the mouth and cheeks.

THUJONE. A natural compound found in the essential oils of cedar, wormwood, sage, mugwort, and clary. It is banned as a flavoring agent in the United States because of its neurotoxicity. Thujone is classified as a monoterpene ketone.

THYROIDECTOMY. Removal of the thyroid gland.

THYRODITIS. Inflammation of the thyroid.

THYROID-STIMULATING HORMONE (TSH). A hormone secreted by the pituitary gland that controls the release of T_4 by the thyroid gland.

THYROID. A small gland, located in the middle of the lower neck. A properly functioning thyroid maintains a balance of thyroid hormones to sufficiently regulate the body's metabolism.

THYROTOXICOSIS. An excess of thyroid hormone levels, thyroxine (T4), triiodothyronine (T3), or both, in the blood. Symptoms include rapid heart beat, sweating, anxiety, and tremor.

THYROXINE (T_4). A thyroid hormone that regulates many essential body processes.

TIA (TRANSIENT ISCHEMIC ATTACK). Occlusion of smaller blood vessels to the brain that can produce stroke-like symptoms from a few minutes to 24 hours, but leaves no permanent damage.

TIBB-NABAWI. Prophetic medicine (another name for unani-tibbi).

TIBIA. One of the long bone of the lower leg.

TIC. An involuntary, sudden, spasmodic muscle contraction.

TINCTURE. A solution of a medicinal substance in alcohol prepared by steeping the roots, leaves, or other parts of an herb or ingredient in an alcohol and water mixture. Tinctures can also be prepared using vinegar or glycerin instead of alcohol.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

TINEA CRURIS. The medical term for jock itch.

TINEA. Any of several fungal infections of the skin, especially ringworm.

TINNITUS. Perceived ringing, buzzing, whistling, or other noise heard in one or both ears that has no external source. There are a number of conditions that may cause this.

TISANE. A decoction of herbs, usually drunk for medicinal purposes.

TITRATION. Gradually adjusting dosage of a supplement until the desired result is obtained, but no unwanted side effects appear.

TMJ SYNDROME. Tightness and pain in the jaw and neck muscles.

TOFU. A high-protein curd made from soybeans, used in meat and dairy replacement products.

TOLERANCE. A phenomenon whereby a drug user becomes physically accustomed to a particular dose of a substance, and requires ever-increasing dosages in order to obtain the same effects.

TONIC PUPIL. A pupil that is slow to change.

TONIC. A medication or herbal preparation that is given to restore or increase muscle tone, or to generally promote the vital functions of the body; or, An agent that restores normal tone to tissues.

TONIFICATION. Acupuncture technique for strengthening the body.

TONSILS. Oval-shaped masses of glandular tissue located on both sides at the back of the throat. Tonsils act like filters to trap bacteria and viruses.

TOPHUS (PLURAL, TOPHI). A chalky deposit of a uric acid compound found in gout. Tophi occur most frequently around joints and in the external ear.

TOPICAL. Referring to a medication or other preparation applied to the skin or the outside of the body.

TORSION. The accidental twisting of tissues in the body that may decrease the blood and oxygen supply to the affected area.

TOTAL PELVIC EXENTERATION. Surgical procedure involving removal of the rectum, lower portion of the large intestine, the urinary bladder, the pelvic reproductive organs, lymph nodes, pelvic muscles, and perineum. Both urinary and fecal diversions are required for this surgery.

TOURNIQUET. A device used to control bleeding, consisting of a constricting band applied tightly around a limb above the wound. It should only be used if the bleeding in life-threatening and cannot be controlled by other means.

TOXEMIA. Poisoning of the blood.

TOXICOLOGY. The branch of medical pharmacology dealing with the detection, effects, and antidotes of poisons.

TOXIC SHOCK SYNDROME (TSS). A potentially serious bacterial infection associated with the use of tampons to absorb menstrual flow.

TOXIFICATION. When the body is unable to eliminate poisonous substances, they remain clogged in the system and eventually cause a breakdown of normal function.

TOXIN. A general term for something that harms or poisons the body.

TRACE ELEMENT. An element that is required in only minute quantities for the maintenance of good health. Trace elements are also called micronutrients.

TRACHEA. A cartilage tube in the area of the throat that carries air to the lungs.

TRACHEOTOMY. A surgical procedure in which a small hole is cut into the trachea, or windpipe, below the level of the vocal cords.

TRADITIONAL CHINESE MEDICINE (TCM). An ancient system of medicine based on maintaining a balance in vital energy or qi that controls emotions and both spiritual and physical wellbeing. TCM utilizes herbal remedies, acupuncture, cupping, and other treatment modalities.

TRANS-FATTY ACID. A toxic type of fat created by hydrogenating oils and by deep frying foods.

TRANS-RECTAL ULTRASOUND. A procedure in which a probe is placed in the rectum. High-frequency sound waves that cannot be heard by humans are sent out from the probe and reflected by the prostate.

TRANSCENDENTAL MEDITATION (TM). A meditation technique based on Hindu practices that involves the repetition of a mantra.

TRANSCRANIAL MAGNETIC STIMULATION. A procedure used to treat patients with depression.

TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION (TENS). A technique used to control chronic pain. Electrodes placed over the painful area deliver a mild electrical impulse to nearby nerve pathways, thereby blocking transmission of pain signals to the brain.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

TRANSENDENTAL MEDITATION. A focusing of the mind based in part on Hindu meditation techniques in which each person is given a word or phrase to meditate upon.

TRANSIENT. Of short duration.

TRANSVAGINAL ULTRASOUND. A technique for imaging the ovaries using sound waves generated by a probe inserted into the vagina. This diagnostic imaging procedure serves as the baseline for a hysterosonographic examination.

TRAUMATIC SHOCK. A condition of depressed body functions as a reaction to injury with loss of body fluids or lack of oxygen. Signs of traumatic shock include weak and rapid pulse, shallow and rapid breathing, and pale, cool, clammy skin.

TRAVELER'S DIARRHEA. Diarrhea caused by ingesting local bacteria to which one's digestive system has not yet adapted.

TREMATODES. Flukes, which are flat, leaf-shaped parasitic worms.

TREMBLING. A shaking of a body part.

TREPHINE. A saw- or drill-like instrument used to remove a circular piece of bone from the skull. It is also called a trepan.

TRICHINELLOSIS. A parasitic disease caused by tissue-dwelling roundworms of the species *Trichinella spiralis*, usually acquired by eating infected meat.

TRICYCLIC ANTIDEPRESSANT (TCA). A group of antidepressant drugs that all have three rings in their chemical structure. Their mechanism of action is not fully understood, but they appear to extend the duration of action of some neurohormones, including serotonin and norepinephrine.

TRICYCLICS. A type of antidepressant; Elavil, for example.

TRIDOSHA. The combination of three basic principles of energy, or biological humor, that comprise life, according to Ayurvedic philosophy.

TRIGEMINAL NEURALGIA OR TIC DOULOUREUX. An affliction of the trigeminal or fifth cranial nerve. The condition is characterized by attacks of shooting, stabbing pain on one side of the face. These episodes are triggered by touching the affected area.

TRIGGER POINT. An area of intense irritability within soft tissue structures, characterized by local soreness and sometimes referred pain.

TRIGLYCERIDE. Total amount of fat in the blood; or, a blood fat lipid that comes from food or is made from other energy sources in the body. Elevated triglyceride levels contribute to the development of atherosclerosis, or heart disease.

TRIGONELLINE. An alkaloid compound found in fenugreek.

TRIIODOTHYRONINE (T_3). A thyroid hormone similar to thyroxine but more powerful. Preparations of triiodothyronine are used in treating hypothyroidism.

TRIMESTER. One-third or 13 weeks of pregnancy.

TRIMETHYLAMINE. A product of decomposition associated with a fishy odor. Its build-up can result from excessive choline.

TRIMYRISTIN. A chemical found in nutmeg that causes anxiety.

TRIPLE BURNER. The pathways and relationships between the Spleen, the Lungs and the Kidney.

TRITURATION. A method of preparing a homeopathic remedy from an insoluble substance by grinding or pounding it into a fine powder. *Calcarea carbonica* is prepared from shells by trituration.

TROPICAL SPRUE. A condition of unknown cause whereby abnormalities in the lining of the small intestine prevent the body from absorbing food normally. This disease is not associated with gluten enteropathy. It has been associated with travel in tropical areas.

TUBAL PREGNANCY. A fertilized egg that implants in the fallopian tube instead of inside the uterus, which often occurs as a result of sexually transmitted infections such as Chlamydia; also known as ectopic pregnancy.

TUBERCLES. Small, pea-sized tubers that grow on *Dioscorea* plants in the angles between the leaves and the stem. They are used in the cultivation of Chinese yam.

TUBEROUS SCLEROSIS. A genetic disease that causes skin problems, seizures, and mental retardation; it may be confused with autism.

TUBER. A thick, fleshy underground stem that produces buds that can give rise to new plants.

TUI NA. A form of Chinese massage in which the therapist vigorously pushes and kneads the soft tissues of the patient's body. Its name means "push and grasp."

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

TUMOR ANTIBODY FACTOR (TAF). A component of IAT sera, possibly tumor necrosis factor (TNF), that may induce antibodies that destroy tumors.

TUMOR COMPLEMENT FACTOR (TCF). A component of IAT sera that stimulates antibody production.

TUMOR INDUCING FACTOR (TIF). A blood component that can initiate tumor growth.

TUMOR NECROSIS FACTOR (TNF) ANTAGONIST. A substance that blocks the action of TNF, a naturally occurring protein in the body that helps cause inflammation.

TUMOR. An abnormal growth resulting from a cell that loses its normal growth control restraints and multiplies uncontrollably.

TYRAMINE. A compound derived from tyrosine, an amino acid that is a precursor to various alkaloids, and found in various types of food.

TZANCK PREPARATION. A procedure in which skin cells from a blister are stained and examined under the microscope. The presence of large skin cells with many cell centers or nuclei points to a diagnosis of herpes zoster when combined with results from a physical examination.

TZANCK TEST. A laboratory test using a microscope to examine tissue samples that have been stained with certain dyes.

U

UDANA. Life-sustaining energy of the diaphragm, the third of the five airs of Ayurvedic philosophy, the life force governing upward motion.

ULCERATION. A pitted area or break in the continuity of a surface, such as the skin or mucous membrane.

ULCERATIVE COLITIS. An inflammation of the walls of the bowel accompanied by the formation of ulcers. The condition can result in permanent bowel damage.

ULCER. A site of damage to the skin or mucous membranes characterized by the formation of pus and the death of tissue. It is frequently accompanied by inflammation.

ULTRASOUND. This medical device uses sound waves bouncing off body organs or tissues, which are reflected back as images on the screen. Ultrasound can show shape, size, and certain characteristics of the tissues.

ULTRAVIOLET RADIATION (UV). Electromagnetic radiation that is shorter than visible light rays but longer than x rays. UV is thought to be responsible for sunburns, skin cancers, and cataract formation.

UNAPPROVED DRUG. The FDA is responsible for ensuring that biological products are safe and effective and in compliance with the law and FDA regulations. Biological products are licensed under the provisions of Section 351 of the Public Health Service Act (42USC)(PHS Act).

UNICURSAL. A curve or series of curves that forms one path, without branching or splitting. A true labyrinth is unicursal in design.

UNSATURATED FAT. Fat found in plant foods that is typically liquid (oil) at room temperature. They can be monounsaturated or polyunsaturated, depending on their chemical structure. Unsaturated fats are the most highly recommended dietary fats.

UREA. A colorless compound that is the primary component of urine in mammals and that results from the oxidation of proteins.

URETER. A tube that carries urine from the kidney to the bladder.

URETHRAL SPHINCTER. Circular muscle that controls the movement of urine from the bladder to the urethra.

URETHRA. The small tube that drains urine from the bladder and in men serves as a conduit for semen during ejaculation.

URETHRITIS. An inflammation or irritation of the urethra, the tube that drains the bladder.

URIC ACID. A compound that can form deposits in joints and tissues. This disease is known as gout or hyperuricemia.

URINARY RETENTION. The result of progressive obstruction of the urethra by an enlarging prostate, causing urine to remain in the bladder even after urination.

UROLOGIST. A physician who specializes in treating problems of the urinary tract.

URTICARIA. Itchy pustules that may be caused by a hypersensitivity to food, drugs, or other substances.

USP. The *U.S. Pharmacopoeia* contains nationally and internationally recognized drug standards published by the United States Pharmacopeia Convention and used as a standard by FDA and other federal regulatory agencies.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

UTERUS. The female reproductive organ that contains and nourishes a fetus from implantation until birth. Also known as the womb.

UVEITIS. Inflammation of the uvea, which is a continuous layer of tissue consisting of the iris, the ciliary body, and the choroid. The uvea lies between the retina and sclera.

UVULOPALATOPHARYNGOPLASTY (UPPP). An operation to remove excess tissue at the back of the throat to prevent it from closing off the airway during sleep.

V

VACCINE. A substance prepared from a weakened or killed virus which, when injected, helps the body to form antibodies that attack an invading virus and may prevent infection altogether.

VAGINAL CONE. A weighted cone held in the vagina for Kegel excercising.

VAGINISMUS. A condition in which muscles around the outer third of the vagina have involuntary spasms in response to attempts at vaginal penetration, thus making penetration impossible or difficult.

VAGINITIS. An inflammation of the mucous membrane that lines the interior of the vagina. It often results from a *Candida* or other fungal infection, and is accompanied by pain, itching, and discharge.

VAGINOSIS. Bacterial infection of the vagina, caused by an overgrowth of bacteria that normally live in the vagina.

VALACYCLOVIR. An oral antiviral drug that is available under the trade name Valtrex. The drug prevents the varicella zoster virus from replicating.

VARICELLA-ZOSTER IMMUNE GLOBULIN (VZIG). A substance that can reduce the severity of chickenpox symptoms.

VARICELLA-ZOSTER VIRUS. The virus that causes chicken pox and shingles.

VARICOSE VEINS. Swollen and distended veins in the superficial skin layer of the legs.

VARIVAX. A vaccine for the prevention of chicken pox.

VAS DEFERENS. The duct that stores sperm and carries it from the testicles to the urethra.

VASODILATATION. A widening of the blood vessels.

VASODILATORY. Causing the veins in the body to dilate, or enlarge.

VASODILATOR. A drug or nerve that causes blood vessels to widen.

VATA. One of the three main constitutional types found under Ayurvedic principles. Keeping one's particular constitution in balance is considered important in maintaining health.

VECTOR. An animal or insect carrier that transfers an infectious organism from one host to another.

VEGAN. A person who does not eat any animal products, including dairy and eggs; or, food products made without any animal products such as meat, milk, or eggs. A vegan diet is a nutrition regimen that excludes all animal products.

VEGAN DIET. A vegetarian diet that excludes meat and dairy products.

VEGETARIANISM. The theory or practice of living only on vegetables and fruits.

VENOUS THROMBOEMBOLISM. A blood clot in a vein rather than an artery, which, if it breaks free, can travel to a lung.

VENTRICLE. One of the two lower chambers of the heart.

VENTRICULAR. Pertaining to the two lower chambers of the heart.

VERMIFUGE. A medication or preparation given to expel worms and other intestinal parasites.

VERRUCA (PLURAL, VERRUCAE). The medical term for warts.

VERTEBRAE. The component bones of the spine.

VERTIGINOUS ATTACKS. Attacks of vertigo or dizziness.

VERTIGO. A feeling of dizziness together with a sensation of movement and a feeling of rotating in space.

VESICLE. Sac or hollow structure filled with fluid (i.e., a blister).

VESTIBULAR SYSTEM. The brain and parts of the inner ear that work together to detect movement and position. Also maintains balance.

VESTIBULAR. Pertaining to the vestibule; regarding the vestibular nerve of the ear which is linked to the ability to hear sounds.

VIGILANCE. Attentiveness or alertness.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

VILLI. The tiny, finger-like projections on the surface of the small intestine that help absorb nutrients.

VIPASSANA. A Buddhist meditative practice that emphasizes deep attentiveness to the present moment.

VIREMIA. The measurable presence of virus in the bloodstream that is a characteristic of acute retroviral syndrome.

VIRILIZATION. Male sexual characteristics such as deepening voice, male-pattern hair growth and balding in women.

VIRUS. A tiny particle that can cause infections by duplicating itself inside a cell using the cell's own machinery.

VISUAL ACUITY. Visual sharpness and resolving ability, usually measured by the ability to read numbers and letters.

VISUALIZATION TECHNIQUES. A form of meditation, contemplation, and imagination that seeks to alter physical processes and directions of behavior or outcomes by focused mental awareness on specific images.

VITAL FORCE. Innate wisdom and energy of the body.

VITAMIN. Any of various organic carbon-containing substances that are essential in minute amounts for normal growth and activity of the body, and are obtained naturally from plant and animal foods.

VITAMIN A (RETINOL). An essential nutrient for vision that is obtained from animal products or made in the liver from carotenoids such as beta carotene. Also found in orange and yellow vegetables, milk, and eggs. It is critical for proper growth and development.

VITAMIN K. A fat-soluble vitamin responsible for blood clotting, bone metabolism, and proper kidney function.

VITILIGO. A skin pigmentation disorder in which the melanocytes are destroyed leaving irregular patches of unpigmented skin, appearing most commonly on hands, feet, face and lips.

VOLATILE ORGANIC COMPOUNDS. Compounds from common sources such as cleaning materials and furnishings that vaporize, or become a gas, at room temperature.

VOLATILE. Evaporating readily at room temperature. The essential oils of a plant are sometimes called volatile oils for this reason.

VOLUNTARY MUSCLE. A muscle under conscious control; contrasted with smooth muscle and heart muscle.

VOMITUS. The medical term for the contents of the stomach expelled during vomiting.

VULNERARY. A medication or preparation used to heal wounds, bruises, sprains, and ulcers.

VULVAR VESTIBULITIS. Inflammation of the vestibule of the vulva or vagina.

VULVA. The external genital organs of a woman, including the outer and inner lips, clitoris, and opening of the vagina.

VULVOVAGINAL CANDIDIASIS. A yeast-like fungal infection of the vulva and vagina, which can be related to regular consumption of cranberry.

VYANA. Life sustaining energy of the heart and lungs; the second of the five airs of Ayurvedic philosophy; the life force governing circular motion.

W

WARFARIN. A blood-thinning drug, known by the brand name Coumadin.

WART. A small, fleshy skin growth caused by a virus.

WASTING SYNDROME. A progressive loss of weight and muscle tissue caused by the AIDS virus.

WATER-SOLUBLE VITAMINS. Vitamins that are not stored in the body and are easily excreted. These vitamins must be consumed regularly as foods or supplements to maintain health.

WEDGE RESECTION. Removal of only a small portion of a cancerous lung.

WERNECKE-KORSAKOFF SYNDROME. A condition caused by thiamine deficiency and usually related to alcoholism. Symptoms occur alternately in the central nervous system (brain and spinal cord) and peripheral nervous system (nerves in the remaining parts of the body).

WHEAL. A smooth, slightly elevated area on the body surface, which is redder or paler than the surrounding skin.

WHEAT GRASS. Young green wheat sprouts, grown organically for juicing; a central element of the Wigmore diet.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

WHOLE BLOOD. Blood that contains red blood cells, white blood cells, and platelets in plasma.

WILDCRAFTING. The art of gathering or harvesting herbs or other plants from their native wild environment for human use.

WILSON'S DISEASE. A rare hereditary disease marked by high levels of copper deposits in the brain and liver. It can cause psychiatric symptoms resembling schizophrenia.

WINDOW. A perspective adopted to assess the property of a given plant.

WITHDRAWAL. The side effects experienced by a person who has become physically dependent on a substance, upon decreasing the substance's dosage, or discontinuing its use.

WOLFF–PARKINSON–WHITE (WPW) SYNDROME. A condition caused by abnormal electrical function in the heart

X

XEROSTOMIA. The medical term for dry mouth.

Y

YIN AND YANG. A Taoist concept that the universe is split into two separate but complementary aspects. Balance is sought between the passive force of yin (female) and the active force of yang (male).

YOGA. An Indian philosophical and health movement that strives to achieve balance through relaxation, meditation, breathing exercises, and body movements.

YOGI (FEMININE, YOGINI). A trained yoga expert.

YTTRIUM ALUMINUM GARNET (YAG). A type of laser used to perform surgery on secondary cataracts.

Z

ZEAXANTHIN. An antioxidant carotenoid that is the mirror image of lutein.

ZEN. A form of meditation that emphasizes direct experience.

ZOLLINGER-ELLISON SYNDROME. A disorder characterized by the presence of tumors (gastrinomas) that secrete a hormone (gastrin), which stimulates the production of digestive juices.

ZONE THERAPY. Also called zone analgesia, a method of relieving pain by applying pressure to specific points on the body. It was developed in the early 20th century by William Fitzgerald.

ZOONOSIS (PLURAL, ZOONOSES). Any disease of animals that can be transmitted to humans. Rabies is an example of a zoonosis.

ZYGOTE. The result of the sperm successfully fertilizing the ovum. The zygote is a single cell that contains the genetic material of both the mother and the father.

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

INDEX

In the index, references to individual volumes are listed before colons; numbers following a colon refer to specific page numbers within that particular volume. **Boldface** page number ranges indicate main topical essays. Photographs and illustration references are highlighted with an *italicized* page number; and tables are also indicated with the page number followed by a lowercase, italicized *t*.

A

AA (Alcoholics Anonymous), 1:45
AAAAI. *See* American Academy of Allergy, Asthma and Immunology
AAAOM (American Association of Acupuncture and Oriental Medicine), 1:187, 500
AAMA (American Academy of Medical Acupuncture), 1:19, 187
AANP (American Association of Naturopathic Physicians), 1:494; 3:1579
AAPC (American Association of Pastoral Counselors), 3:1795
AAPM (American Academy of Pain Management), 4:2270
Aaron's rod. *See* Mullein
AASECT (American Association of Sexual Educators, Counselors, and Therapists), 4:2033
AAT (alpha 1-antitrypsin) deficiency, emphysema and, 2:753, 756
AATA (American Art Therapy Association), 1:148; 2:1244
Abana, for ischemia, 2:1225
ABCD appearance, skin cancer and, 4:2073
ABCT (American Board of Chelation Therapy), 1:466
ABHM (American Board of Holistic Medicine), 2:1082
Abhyanga massage, 4:2030
Abnormal uterine bleeding, 3:1480
Abortifacients
  andrographis, 1:77
  bayberry, 1:209
  bitter melon, 1:264
  black haw, 1:276, 277
  blue cohosh, 1:299
  cotton root bark, 1:616
  hibiscus, 2:1064
  pennyroyal, 3:1726, 1727
  ruta, 3:1961
  thuja, 4:2231
  wormwood, 4:2396
Abraham, Irwin, 3:1824
Abrak bhasma, for wheezing, 4:2373
Abrams, Albert, 3:1878, 1879
Abrasions, 4:2397, 2398
  See also Wounds
Abreva, for cold sores, 1:564
Abscesses, 1:**1–3**, *2*
  chickweed for, 1:480
  chymotrypsin for, 1:539
  compresses for, 2:1122
  Crohn's disease and, 1:632, 633
  diverticulitis and, 2:709, 710
  fenugreek for, 2:826
  gardenia for, 2:893
  gum diseases and, 2:976, 978
  Hepar sulphuris for, 2:1035
  kidney infections and, 2:1272, 1274
  manuka honey for, 3:1428
  marsh mallow for, 3:1435
  pancreatic, 3:1694, 1695
  scallion for, 4:1984
  slippery elm for, 4:2088
  from staphylococcal infections, 4:2134, 2137
  tubo-ovarian, 3:1721, 1725
  usnea for, 4:2298
Absence seizures, 2:778
Absinthe (liqueur), 4:2396
Absinthism, 4:2396
Absorption of nutrients
  betaine hydrochloride for, 1:234
  calcium, 1:380
  chelated mineral supplements for, 1:463
  Crohn's disease and, 1:631–632, 633
  inositol and, 2:1193
  iron, 2:1217
  lecithin and, 3:1323
  medium-chain triglycerides, 3:1456, 1457
  psyllium and, 3:1851
Abstinence, sexual, 1:486, 514
ABT Global Pharmaceutical, 3:1511
Academy for Guided Imagery, 3:1508
Academy for Myofasical Trigger Point Therapy, 4:2271
ACAM (American College of Advancement in Medicine), 1:465, 466
Acanthosis nigricans
  insulin resistance, 2:1198
  polycystic ovarian syndrome, 3:1777
ACAOM (Accreditation Commission for Acupuncture and Oriental Medicine), 1:500
Acarbose, for diabetes, 2:689
Accidental chemical poisoning. *See* Acute chemical poisoning
Accommodation (vision), 2:1126, 1127
Accreditation Commission for Acupuncture and Oriental Medicine (ACAOM), 1:500
Accrediting Commission of Career Schools and Colleges of Technology, 3:1442
Accrediting Council for Continuing Education and Training, 3:1442
ACCT (American College of Clinical Thermography), 4:2227
Accutane. *See* Isotretinoin
ACE inhibitors
  diabetes, 2:691
  hypertension, 2:1134
Acemannan, in aloe, 1:60, 61
Acetaminophen
  chickenpox fever, 1:478
  chills, 1:496
  dysmenorrhea, 2:730
  headaches, 2:1005
  measles, 3:1447
  migraine, 3:1500
  mononucleosis, 3:1515
  osteoarthritis, 3:1657
  sciatica, 4:2002
Acetaminophen overdose, methionine for, 3:1493
Acetazolamide, for glaucoma, 2:934
Acetest diabetes tests, 2:687
Acetyl-L-carnitine
  Alzheimer's disease, 1:67
  chronic fatigue syndrome, 1:402

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Acetyl-L-carnitine *(continued)*
dementia, 2:665
memory loss, 3:1463
Acetylated mannose, in aloe, 1:60, 61
Acetylcholine, choline and, 1:522
Acetylcysteine. *See* N-acetylcysteine
Acetylsalicylic acid. *See* Aspirin
Aches and pains. *See* Pain
Achillea millefolium. *See* Yarrow
Achilles tendon injuries, 4:2209, *2209*
Acid indigestion. *See* Heartburn
Acidophilus, 1:**3–6,** *4;* 3:1305, 1819
acne, 1:8
chlamydia, 1:514
chronic fatigue syndrome, 1:533
colic, 1:569
detoxification, 2:679
diarrhea, 2:698
food poisoning, 2:861, 862
gastroenteritis, 2:907
gonorrhea, 2:950
heavy metal poisoning, 2:1027
irritable bowel syndrome, 2:1221
Lyme disease, 3:1386
strep throat, 4:2148
trichomoniasis, 4:2268
vaginitis, 4:2309
whooping cough, 4:2380
yeast infections, 4:2404
Acne, 1:**6–10**
acidophilus for, 3:1305
beta carotene for, 1:228
BHAs for, 1:231–232
chasteberry for, 1:460
chymotrypsin for, 1:539
coptis for, 1:607
eucalyptus for, 2:794
grapefruit seed extract for, 2:966
guggul for, 2:970, 971
horsetail for, 2:1106
in infants, 3:1881
jojoba oil for, 2:1242
juniper for, 2:1250
lemongrass for, 3:1329
manuka honey for, 3:1428
neem for, 3:1588, 1589
potassium for, 3:1787
vs. rosacea, 3:1944, 1945
selenium for, 4:2009
silica for, 4:2067
stevia for, 4:2138
sulfur for, 4:2162, 2163
tea tree oil for, 4:2198
thuja for, 4:2232
yellow dock for, 4:2406
zinc for, 4:2421
Acne conglobata, 1:9
Acne fulminans, 1:9
Acne rosacea. *See* Rosacea
ACOA (Adult Children of Alcoholics), 1:45
Aconite, 1:*10,* **10–12**
anxiety, 1:115
asthma, 1:157
bites and stings, 1:261
bronchitis, 1:340
chickenpox, 1:478
common cold, 2:1086
cough, 1:619
croup, 1:636
cuts and scratches, 1:647
dizziness, 2:713
ear infections, 2:733
fever, 4:1987
holistic dentistry and, 2:1077
in homeopathy, 2:1083*t,* 1086
influenza, 2:1086
laryngitis, 3:1309
menstruation disorders, 3:1483
swimmer's ear, 4:2177
Aconitine, 1:10
Acorus calamus. *See* Calamus
Acquired Immunodeficiency Syndrome. *See* AIDS
Acquired myopia. *See* Myopia
Acridine orange malaria tests, 3:1416
Acrodermatitis continua of Hallopeau, 3:1836
ACTH (adrenocorticotropin hormone), 2:1124
Action of herbs, traditional Chinese medicine and, 2:1043
Activated charcoal, 1:*456,* **456–458**
body odor, 1:301
chemical poisoning, 1:472
food poisoning, 2:861
halitosis, 2:985
hangovers, 2:988
ipecac and, 1:457, 458; 2:1207–1208
kola nuts and, 2:1287
Activated human protein C, for blood poisoning, 1:294, 295
Active labor (childbirth), 1:483, 484
ActivOn arthritis formula, 3:1685
Actonel (risendronate), for osteoporosis, 3:1666
Acupoints. *See* Acupuncture points
Acupressure, 1:*12,* **12–16**
chickenpox, 1:478
Chinese massage and, 1:499–500
colic, 1:568
constipation, 1:599
dementia, 2:666
dizziness, 2:714
endometriosis, 2:760
epilepsy, 2:777
facial massage and, 2:811
gastritis, 2:903
gastrointestinal gas, 2:899, 899*t*
genital herpes, 2:911
gonorrhea, 2:950
hangovers, 2:988
headaches, 2:*1001,* 1002*t,* 1004
heartburn, 2:1024
heel spurs, 2:1029
hemorrhoids, 2:1033
hiccups, 2:1065
indigestion, 2:1167*t*
inflammatory bowel disease, 2:1185
influenza, 2:1188
juvenile rheumatoid arthritis, 2:1253
knee pain, 2:1283
laryngitis, 3:1308
low back pain, 3:1365
as massage therapy, 3:1440
measles, 3:1446
menopause, 3:1476
menstruation disorders, 3:1482
migraine, 3:1500
mononucleosis, 3:1515
morning sickness, 3:1802
motion sickness, 3:1521
mumps, 3:1546
nausea, 3:1583
neck pain, 3:1585
osteoarthritis, 3:1656
ovarian cancer, 3:1670
ovarian cysts, 3:1676
pain, 3:1686
pelvic inflammatory disease, 3:1724
premenstrual syndrome, 3:1805
retinopathy, 3:1919
rheumatoid arthritis, 3:1926
scoliosis, 4:2005
shiatsu and, 4:2046, 2047
shingles, 4:2053
sleep disorders, 4:2085
sneezing, 4:2096
stomachaches, 4:2144
strokes, 4:2156
tennis elbow, 4:2213
toothaches, 4:2247
vomiting, 4:2359
weight loss, 3:1624
Acupuncture, 1:*16,* **16–20;** 3:1911
anemia, 1:85
ankylosing spondylitis, 1:97
anxiety, 1:115
applied kinesiology and, 1:125
asthma, 1:157
astigmatism, 1:160
atherosclerosis, 1:167
bipolar disorder, 1:257
bone spurs, 1:309
breast cancer, 1:324
bronchitis, 1:340
bruxism, 1:343
bunions, 1:358
bursitis, 1:364
carpal tunnel syndrome, 1:408
chi concept and, 3:1791
childbirth, 1:484
chronic fatigue syndrome, 1:533
colorectal cancer, 1:580
Crohn's disease, 1:633
cupping and, 1:638, 639
depression, 2:670
detoxification and, 2:679

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

diabetes, 2:689
diarrhea, 2:698
diverticulitis, 2:710
dry mouth, 2:721
dysmenorrhea, 2:730
ear infections, 2:733
eczema, 2:743
edema, 2:746
electroacupuncture, 1:187; 2:*749*, 749–750
endometriosis, 2:760
epididymitis, 2:775
epilepsy, 2:777
fatigue, 2:817
fibromyalgia, 2:840
frostbite, 2:873
gallstones, 2:880
gastritis, 2:903
gastrointestinal gas, 2:899
genital herpes, 2:911
glaucoma, 2:934
gonorrhea, 2:950
gout, 2:957
Gulf War syndrome, 2:975
hay fever, 1:55
headaches, 2:1002*t*, 1004
hearing loss, 2:1009
heart disease, 2:1018
heel spurs, 2:1029
hemorrhoids, 2:1033
herniated disks, 2:1056, 1058
Hodgkin's disease, 2:1074
holistic dentistry and, 2:1078
hot flashes, 2:1109
hypercortisolemia, 2:1125
infections, 2:1176
infertility, 2:1181
inflammatory bowel disease, 2:1185
influenza, 2:1188
insomnia, 2:1196, 1197
irritable bowel syndrome, 2:1221
itching, 2:1229
jaundice, 2:1236
juvenile rheumatoid arthritis, 2:1253
kidney infections, 2:1274
knee pain, 2:1283
laryngitis, 3:1308
lazy eye, 3:1314
leukemia, 3:1334
low back pain, 3:1365, 1366
lung cancer, 3:1371
lymphomas, 3:1420
measles, 3:1446
Ménière's disease, 3:1466
menopause, 3:1476
menstruation disorders, 3:1482–1483
migraine, 3:1500
mononucleosis, 3:1515
moxibustion and, 3:1528–1529
multiple chemical sensitivity, 3:1540
myopia, 3:1556
nausea, 3:1582–1583
neck pain, 3:1585, 1686
neuralgia, 3:1597
ovarian cancer, 3:1670
ovarian cysts, 3:1676
overview, 4:2256
pain, 3:1686
pancreatitis, 3:1695
panic disorders, 3:1698
Parkinson's disease, 3:1708
pelvic inflammatory disease, 3:1724
peptic ulcers, 4:2286
pinched nerves, 3:1753–1754
pleurisy, 3:1767, 1768
polycystic ovarian syndrome, 3:1779
postpartum depression, 3:1781
pregnancy, 3:1799
premenstrual syndrome, 3:1805
pulse diagnosis and, 3:1855, 1856
rashes, 3:1882
Raynaud's syndrome, 3:1887
retinopathy, 3:1919
rheumatic fever, 3:1922
rheumatoid arthritis, 3:1926
rhinitis, 3:1929
sciatica, 4:2002
scoliosis, 4:2005
sexual dysfunction, 4:2033
shingles, 4:2053
sickle cell anemia, 4:2064
sinus infections, 4:2069
sleep disorders, 4:2085
smoking cessation, 4:2090*t*, 2093
sneezing, 4:2096
snoring, 4:2098
sprains and strains, 4:2128
staphylococcal infections, 4:2136
stomachaches, 4:2144
strokes, 4:2156
substance abuse, 4:*2159*, 2161–2162
systemic lupus erythematosus, 4:2188
temporomandibular joint syndrome, 4:2207
tendinitis, 4:2210
tennis elbow, 4:2213
tinnitus, 4:2242
toothaches, 4:2247
Tourette syndrome, 4:2249
UTIs, 1:285
vomiting, 4:2358, 2359
warts, 4:2362
weight loss, 3:1624
whooping cough, 4:2380
worms, 4:2393
wounds, 4:2399
See also Auriculotherapy

Acupuncture in Medicine (journal), 4:2207

Acupuncture points
acupressure, 1:14
applied kinesiology, 1:125
Chinese massage, 1:499
facial massage, 2:811
holistic dentistry, 2:*1076*
martial arts, 3:1437
moxibustion, 3:1528
overview, 4:2256
shiatsu, 4:2046
substance abuse, 4:*2159*
See also Meridians

Acupuncturists, 1:18, 19

Acute bronchitis, overview, 1:339, 340, 341
See also Bronchitis

Acute chemical poisoning, 1:467, 468, 470, 471

Acute chest syndrome, sickle cell anemia and, 4:2063

Acute closed-angle glaucoma, 2:932, 933, *933*, 934

Acute diarrhea, defined, 2:695
See also Diarrhea

Acute incontinence, 4:2290, 2292
See also Urinary incontinence

Acute leukemias, 3:1332
See also Leukemia

Acute pain, 3:1683

Acute polyneuritis. *See* Guillain-Barré syndrome

Acute prescribing homeopathy, 2:**1089–1092**
See also Homeopathy

Acute pyelonephritis. *See* Kidney infections

Acute respiratory distress syndrome, 2:883

Acute retroviral syndrome, 1:34

Acute stress disorder (ASD), 3:1784

Acute stress gastritis, 2:901, 903
See also Gastritis

Acute urinary retention, prostate enlargement and, 3:1830, 1832

Acyclovir
chickenpox, 1:478
cold sores, 1:563–564
genital herpes, 2:912
meningitis, 3:1472
pneumonia, 3:1772
shingles, 4:2053

AD. *See* Alzheimer's disease

ADA. *See* American Dental Association; American Diabetes Association; American Dietetic Association

Adalimumab, 1:97; 2:1253

Adams, Hunter ("Patch"), 2:1116

Adams test, for scoliosis, 4:2005

Adaptations, home. *See* Home modifications

Adaptogens
American ginseng, 2:924
for anxiety, 1:116
ashwaganda, 1:151

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Adaptogens *(continued)*
astralagus, 1:163–164
for binge eating disorder, 1:241
codonopsis root, 1:553
ganoderma, 2:887
Korean ginseng, 2:927
maitake, 3:1412
for panic disorders, 3:1698
for phobias, 3:1743
rhodiola rosea, 3:1931
schisandra, 4:1989, 1990
Siberian ginseng, 2:930
for stress, 4:2152
suma, 4:2165
ADD. *See* Attention-deficit hyperactivity disorder
Adderly, Brenda, 1:74
Adder's mouth. *See* Chickweed
Addiction, defined, 4:2158
See also Substance abuse and dependence
Additives, food. *See* Food additives and preservatives
Ademetionine, 1:**20–22;** 2:670; 3:1492–1494
Adenocarcinomas, 1:385, 579
Adenoids, snoring and, 4:2097
Adenomas, 1:71; 2:1129
Adenoviruses
gastroenteritis from, 2:906
quercetin for, 3:1866
sore throat and, 4:2104
Adequate intake (AI)
chromium, 1:529*t*
copper, 1:603*t*
manganese, 3:1423, 1423*t*
omega-3 fatty acids, 3:1632–1633
omega-6 fatty acids, 3:1636
pantothenic acid, 3:1700, 1700*t*
riboflavin, 3:1937–1938, 1938*t*
vitamin C, 4:2344
vitamin D, 4:2346, 2347*t*
vitamin K, 4:2353–2354, 2353*t*
See also Recommended daily allowances
Ader, Robert, 3:1839
ADHD. *See* Attention-deficit hyperactivity disorder
Adhesive tape tests (parasitic infections), 3:1704; 4:2393
Adie, William John, 1:23
Adie's pupil, 1:**22–24**
Adjuvant chemotherapy. *See* Chemotherapy
Adjuvant therapy
breast cancer, 1:325
colorectal cancer, 1:581
Adler, Alfred, 3:1845, 1846
Adolapin, 1:120
Adolescents
alcoholism, 1:45–46
calcium needs, 1:378*t*, 380
chlamydia in, 1:512
dysmenorrhea in, 3:1480
gonorrhea in, 2:950
nutrition for, 4:2199–2204, 2199*t*
scoliosis in, 4:2003, 2004
substance abuse and, 4:2158
zinc for, 4:2421
Adonis vernalis. *See* False hellebore
Adonitoxin, 2:707
Adrenal glands
DHEA for, 2:683
ginseng for, 2:1043
Korean ginseng for, 2:927
licorice for, 3:1342
slippery elm for, 4:2088
urine therapy for, 4:2295
Adrenaline. *See* Epinephrine
Adrenocorticotropin hormone (ACTH), 2:1124
Adrue. *See* Cyperus
ADTA (American Dance Therapy Association), 2:656, 657, 658
Adult celiac disease. *See* Celiac disease
Adult Children of Alcoholics (ACOA), 1:45
Adult-onset diabetes. *See* Diabetes mellitus
Adults
asthma, 1:154
chickenpox, 1:476, 477
depression, 2:668–669, 668*t*
Advisory Committee on Immunization Practices, 4:2216
AE-941 shark cartilage supplements, 1:411
Aerobic exercise
benefits, 2:804, 805
headaches, 2:1004
heart attacks, 2:1014
heart disease, 2:1019
ischemia, 2:1225
migraine, 3:1501
multiple sclerosis, 3:1543
premenstrual dysphoric disorder, 3:1483
Aerophagia, gastrointestinal gas from, 2:899
Aesculus species. *See* Horse chestnut
AFA *(aphanizomenon flos-aquae)*, 1:520
Affinity of herbs, traditional Chinese medicine and, 2:1043
Affirmations
in cognitive-behavioral therapy, 1:219
for syphilis, 4:2184
Aflatoxins, ellagic acid and, 1:246
Aframomum melegueta roscoe. *See* Grains-of-paradise fruit
African medicine. *See* Traditional African medicine
African plum tree. *See* African pygeum
African pygeum, 1:**24–27**
hair loss, 2:984
infertility, 2:1181
in traditional African medicine, 4:2254
Agastache, 1:*27*, **27–28;** 4:2358
Agatston, Arthur, 4:2111, 2112
Agave, for stomachaches, 4:2143
Age-Related Eye Disease Study, 1:228
Age-related macular degeneration. *See* Macular degeneration
Age spots
BHAs for, 1:231
chymotrypsin for, 1:539
Ageless Body, Timeless Mind (Chopra), 1:194
Agency for Health Care Policy and Research, 4:1979
Agency for Healthcare Research and Quality (AHRQ), 2:1161; 4:1993
Aggravations, homeopathic. *See* Homeopathic aggravations
Aggressive periodontitis, defined, 2:976
See also Periodontitis
AGI Dermatics, 2:802
Aging, 1:**28–32**
antioxidants for, 1:30, 108, 109
astralagus for, 1:164
BHAs for, 1:231
bruises and, 1:342
cartilage loss and, 2:935
cataracts and, 1:416
cellulite and, 1:437, 438
chills and, 1:495
Chinese foxglove root for, 1:497
Chopra, Deepak on, 1:194
cuscuta for, 1:645
dementia and, 2:663–664
DHEA for, 2:683
fo ti for, 2:854
gotu kola for, 2:952–953
grape seed extract for, 2:960, 961
grape skin for, 2:964
hearing loss and, 2:1008
heart disease and, 2:1016
infertility and, 2:1178
ischemia and, 2:1223
ledum for, 3:1325
lemon balm for, 3:1326
lycium fruit for, 3:1376
melatonin for, 3:1459
memory loss and, 3:1461, 1463
noni for, 3:1605
osteopathy for, 3:1658
osteoporosis and, 3:1663
pine bark extract for, 3:1756
prostate cancer and, 3:1825–1826
prostate enlargement and, 3:1830
resveratrol for, 3:1913–1914
rhodiola rosea for, 3:1930

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

royal jelly for, 3:1954
selenium for, 4:2009
senior nutrition and, 4:2013–2014
tangerine peel for, 4:2196
Aging clock theory, 1:29
Agoraphobia, 1:219; 3:1742, 1743, 1744
Agricultural Research Service, 2:893; 4:2374
Agrimony
as flower remedy, 1:198; 2:850*t*, 851
rashes, 3:1881
retinopathy, 3:1919
urinary incontinence, 4:2293
Agropyron species. *See* Wheat grass therapy
Ague tree. *See* Sassafras
AHA. *See* American Heart Association
AHAs (alpha-hydroxy acids). *See* Alpha hydroxy acids
Ahimsa (journal), 4:2319
Ahimsa (principle), 4:2324
AHMA (American Holistic Medicine Association), 2:1082
AHPA (American Herbal Products Association), 2:1261
AHRQ (Agency for Healthcare Research and Quality), 2:1161; 4:1993
Ai ye. *See* Mugwort
AIDS, 1:*32*, **32–39**, 32*t*
apitherapy for, 4:2331
beta-methylbutyric acid for, 1:225
cat's claw for, 1:422
chills with, 1:495–496
coenzyme Q10 for, 1:556
essiac tea for, 2:791
glutamine for, 2:938
glutathione for, 2:940
guided imagery for, 3:1508
Kaposi's sarcoma and, 2:1258, 1259
Korean ginseng for, 2:928
marijuana for, 3:1432
medium-chain triglycerides for, 3:1457
melatonin for, 3:1459
mesoglycan for, 3:1490
methionine for, 3:1493
mistletoe for, 3:1510, 1511
neurolinguistic programming for, 3:1598
non-Hodgkin's lymphoma and, 3:1419
noni for, 3:1605
omega-3 fatty acids for, 3:1632
pau d'arco for, 3:1719
pneumonia and, 3:1770–1771
psychosomatic medicine and, 3:1844
qigong for, 3:1859
reishi mushroom for, 3:1903
shingles and, 4:2054
Siberian ginseng for, 2:931
syphilis and, 4:2182
traditional African medicine for, 4:2253
traditional Chinese medicine for, 2:1044
See also HIV
AIDS dementia complex, 1:35
Aikido
anxiety, 1:115
overview, 3:1437
panic disorders, 3:1698
phobias, 3:1743
post-traumatic stress disorder, 3:1785
Aikido Association of America, 3:1438
Air conditioning, for hot flashes, 2:1112
Air pollution
chemical poisoning and, 1:469–470
emphysema from, 2:753, 755, 757
mercury poisoning and, 3:1487
multiple chemical sensitivity, 3:1538
See also Indoor air quality
Air quality. *See* Indoor air quality
Air swallowing, gastrointestinal gas from, 2:899
Air travel
airport malaria, 3:1415, 1417
phlebitis, 3:1740
radiation exposure, 3:1873, 1874
Airborne (cold remedy), 2:1046
Airborne allergens, 1:53–54; 2:765
AIT. *See* Auditory integration training
Ajna, 1:453
Ajuga species. *See* Bugle weed
Aka (shadow body), 2:1118
Al Anon, 1:45
Al Razi (physican), 4:2288
Al Zahrawi (physician), 4:2288
ALA. *See* Alpha-linolenic acid; American Lung Association
Alanine, for gout, 2:957
Alanine aminotransferase (ALT), 1:69
Albert Einstein College, 4:2314
Albuterol, for asthma, 1:157
Alchemilla vulgaris. *See* Lady's mantle
Alcohol, in Bach flower essences, 1:199
Alcohol abuse. *See* Alcoholism
Alcohol-induced disorders, 1:43
Alcoholic beverages, 3:1317
bitters in, 1:267
caffeine and, 1:374
cancer and, 1:386
cataracts and, 1:416
folic acid and, 2:857
frostbite and, 2:871, 873
ginkgo and, 2:922
gluten-free diet and, 2:944
heart attacks and, 2:1014
heart disease and, 2:1020
hops in, 2:1100
ischemia and, 2:1226
jaundice and, 2:1236
ledum and, 3:1324
motion sickness and, 3:1520
osteoporosis and, 3:1666
for tremors, 4:2263
urinary incontinence and, 4:2292
wormwood in, 4:2396, 2397
See also Hangovers
Alcoholic blackouts, 1:42
Alcoholics Anonymous (AA), 1:45
Alcoholism, 1:**40–46**, 40*t*
arsenicum album for, 1:144
cirrhosis and, 1:545, 549
gamma-linolenic acid for, 2:882
Gulf War syndrome and, 2:974
hangovers and, 2:988
homeopathy for, 2:1094
kudzu for, 2:1292–1293
lobelia for, 3:1354
nux vomica for, 3:1617
pancreatitis and, 3:1692
potassium for, 3:1787
thiamine deficiency and, 4:2229
Alder, Janet, 2:656
Alder buckthorn/alder dogwood. *See* Buckthorn
Alefacept, for psoriasis, 3:1838
Alendronate, for osteoporosis, 3:1478, 1666
Aletrius farinosa, for impotence, 2:1165
Alexander, Charles, 3:1450
Alexander, Frederick Matthias, 1:46–47, 48; 3:1800
Alexander technique, 1:**46–49**
as movement therapy, 3:1525–1526
neck pain, 3:1586
pregnancy, 3:1800
Rubenfeld synergy method and, 3:1958
sciatica, 4:2002
Alexander Technique International (ATI), 1:19
Alexander the Great, 1:60
Alexander's angelica. *See* Angelica
Alexandrian senna. *See* Senna
Alfalfa, 1:**49–51**, *50*
angina, 1:91
atherosclerosis, 1:166
osteoporosis, 3:1665
premenstrual syndrome, 3:1805
Algae
chlorella, 1:515–518, *516*; 2:1027
for cholesterol control, 1:519, 520
Dunaliella, 1:405

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Algae *(continued)*
for genital herpes, 2:912
usnea and, 4:2296–2297
See also Spirulina
Alginic acid, 1:287; 2:1269
Algonquian people, black cohosh use, 1:268, 269
Alisma, 1:*51*, **51–52**
Alkaloids. *See specific types of alkaloids*
All-heal. *See* Mistletoe; Valerian
All-In-One Guide to Natural Remedies and Supplements, 2:1292
Allbaugh, Leland, 3:1453
Allergens
asthma, 1:153*t*, 154, 158
chronic illness, 2:766
hay fever, 2:997–998, 999, 1000
hives, 2:1071–1072
types, 1:53
Allergic conjunctivitis, 1:594, 595
See also Conjunctivitis
Allergic contact dermatitis, 1:601–602
Allergic response, 1:53
Allergic rhinitis. *See* Hay fever
Allergies, 1:**53–57**
Allium cepa for, 1:59
to aloe, 1:61
apitherapy, 1:121
arsenicum album for, 1:144
bedwetting and, 1:212
bee pollen for, 1:215
to bee stings, 4:2331–2332
beta-methylbutyric acid, 1:225
to BHAs, 1:232
black cumin seed extract for, 1:273
caffeine and, 1:374
Chinese skullcap for, 4:2076
coleus for, 1:565–566
colostrum for, 1:583–584
dermatitis and, 2:673, 674
detoxification and, 2:678
devil's claw for, 2:680, 681
earaches and, 2:736–737
eczema and, 2:741, 742, 744
environmental therapy and, 2:764–765
essential oils, 2:788–789
eyebright for, 2:807
feverfew for, 2:833
fructooligosaccharides for, 2:874
ganoderma for, 2:888
Gerson therapy for, 2:919
ginkgo for, 2:922
grape seed extract for, 2:960, 961
grapefruit seed extract for, 2:966
gymnema for, 2:980
homeopathy for, 2:1086, 1089, 1094
hydrotherapy and, 2:1123
Kampo medicine for, 2:1257
kudzu for, 2:1291
lemon balm for, 3:1326
massage therapy for, 3:1440
McDougall diet for, 3:1443
meditation for, 3:1449
Mediterranean diet for, 3:1454
mesoglycan for, 3:1490
MSM for, 3:1530
neural therapy for, 3:1594
nux vomica for, 3:1616
osteopathy for, 3:1658
panchakarma for, 3:1689
parsley for, 3:1712
pau d'arco for, 3:1720
potassium for, 3:1787
probiotics for, 3:1820
qigong for, 3:1859
quercetin for, 3:1865, 1866
rashes and, 3:1880
reflexology for, 3:1897
rhinitis and, 3:1928, 1929
Rosen method for, 3:1953
sneezing and, 4:2095, 2096
stevia for, 4:2138
systemic candidiasis, 1:4
tetanus vaccines, 4:2216
urine therapy for, 4:2295
veganism for, 4:2319, 2320
vegetarianism for, 4:2326
vitamin C for, 4:2342
Wigmore diet for, 4:2382
Allergy elimination diet. *See* Elimination diet
Allergy shots. *See* Immunotherapy
Allergy tests
detoxification, 2:678
environmental therapy, 2:764, 766
essential oils, 2:789
types, 1:54
Allicin, in garlic, 2:894
Allied therapies (anthroposophical medicine), 1:103
Allii fistulosi. *See* Scallion
Allium cepa, 1:*57*, **57–59**
asthma, 1:156
blood clots, 1:292
common cold, 1:591; 2:1046
diabetes, 2:689
hay fever, 2:999
in homeopathy, 2:1083*t*
as insect repellent, 2:1230
itching, 2:1229
rhinitis, 3:1929
sneezing, 4:2096
vomiting, 4:2359
warts, 4:2363
worms, 4:2393
Allium sativa. *See* Garlic
Allodynia, 3:1684
Allogenic bone marrow transplantation, 3:1420
Allopathic medicine
acupuncture and, 1:16, 19
cancer views, 1:386, 396
chiropractic and, 1:510
Christian Science healing and, 1:528
colonic irrigation and, 1:576
vs. energy medicine, 2:761–762
flower essences and, 2:853
holistic medicine and, 2:1082
homeopathy and, 2:1086, 1087–1088, 1090, 1091–1092, 1094, 1096
vs. mind/body medicine, 3:1505
vs. naturopathic medicine, 3:1578
vs. psychophysiology, 3:1840–1841
role of nutrition and, 1:486, 487
traditional Chinese medicine and, 4:2258
Allopurinol, 2:958, 1278
Aloe, 1:*59*, **59–62**
burns, 1:362
chickenpox, 1:478
colitis, 1:570
constipation, 2:705
contact dermatitis, 1:602
corns and calluses, 1:610
cuts and scratches, 1:648
gum diseases, 2:978
hangovers, 2:988
itching, 2:1229
prickly heat, 3:1809
radiation injuries, 3:1876
rashes, 3:1881
sunburn, 4:2168
worms, 4:2393
wounds, 4:2399
Alogia, schizophrenia and, 4:1994
Alopecia. *See* Hair loss
Alopecia areata, 2:983, 984
Aloprim (allopurinol), 2:958, 1278
Alosetron, for irritable bowel syndrome, 2:1221
Alpha 1-antitrypsin deficiency, emphysema and, 2:753, 756
Alpha-adrenergic agonists
glaucoma, 2:934
hot flashes, 2:1111
Alpha-beta blockers, for hypertension, 2:1134
Alpha-blockers
hypertension, 2:1134
prostate enlargement, 3:1831
Alpha carotene
food sources, 1:403*t*
overview, 1:405
Alpha-D-galactosidase, for gastrointestinal gas, 2:899
Alpha hydroxy acids (AHAs), 1:**62–64**, 231
Alpha-linolenic acid (ALA)
in black currant seed oil, 1:274
in flaxseed, 2:846
sources, 2:784
Alpha-lipoic acid
as antioxidant, 1:111
for chronic fatigue syndrome, 1:533
for cirrhosis, 1:547

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

for glaucoma, 2:933
glutathione and, 2:940
for jaundice, 2:1236
for peripheral neuropathy, 3:1734
for retinopathy, 3:1919
Alpha-pinene, in anise, 1:94
Alpha-thalassemia, 1:84
Alpha-theta brain wave neurofeedback, 1:243
Alprostadil, for impotence, 2:1166
ALS (amyotrophic lateral sclerosis). *See* Lou Gehrig's disease
Alschuler, Lise, 4:2415
ALT (alanine aminotransferase), 1:69
Altace, for diabetes, 2:691
Alternate-nostril breathing, defined, 1:331
See also Breath therapy
Alternative Health Practitioner, 2:1214
Alternative Medicine Network, 3:1824
Althaea species. *See* Marsh mallow
Altitude sickness
ganoderma for, 2:888
homeopathy for, 2:1089
reishi mushroom for, 3:1903
Alum
common cold, 1:591
sore throat, 4:2106
strep throat, 4:2148
Alvet. *See* Lysimachia
Alzheimer's Association, 1:65, 66, 68; 2:666
Alzheimer's disease, 1:**64–70**
ademetionine for, 3:1493
gastrodia for, 2:905
ginkgo for, 2:922
gotu kola for, 2:953
green tea for, 2:968
huperzine A for, 1:67, 550
inositol for, 2:1192
lecithin for, 3:1323
manganese for, 3:1422
Mediterranean diet for, 3:1454
memory loss from, 1:66; 3:1462, 1464
music therapy for, 3:1552
sound therapy for, 4:2108
soy protein for, 4:2115
therapeutic touch for, 4:2223
thiamine for, 1:67; 4:2338
triphala for, 4:2272
turmeric for, 1:642
vitamin E for, 4:2350
zinc and, 4:2421
AMA. *See* American Medical Association
Amalaki fruit, in triphala, 4:2271
Amantadine
influenza, 2:1188, 1189
Parkinson's disease, 3:1709
pneumonia, 3:1772
Amaranth, for rashes, 3:1881
Amargo Aromatico, 1:265, 267
Amargogentin, in gentiana, 2:916
Amaroli. *See* Urine therapy
Ambien (zolpidem), for sleep disorders, 4:2086
Amblyopia. *See* Lazy eye
Ambulatory acid probes, for heartburn, 2:1023
Ambulatory phlebectomy, for varicose veins, 4:2317
Amenorrhea, 1:**70–73**; 3:1479–1480
Chinese thoroughwax for, 1:505
dong quai for, 2:719
gotu kola for, 2:952
mistletoe for, 3:1510, 1511
motherwort for, 3:1518
sepia for, 4:2028
therapeutic touch for, 4:2222
American Academy of Allergy, Asthma and Immunology (AAAAI)
allergies, 1:53
asthma, 1:153
celiac disease, 1:429; 3:1351
smoking, 4:2092
American Academy of Environmental Medicine, 2:767
American Academy of Family Physicians, 1:292; 4:2216
American Academy of Medical Acupuncture (AAMA), 1:19, 187
American Academy of Neural Therapy, 3:1595
American Academy of Opthalmology, 4:2179
American Academy of Orthopaedic Surgeons, 1:525
American Academy of Pain Management (AAPM), 4:2270
American Academy of Pediatrics (AAP)
autism, 1:190
chickenpox, 1:479
DTaP vaccine, 4:2216
herbal medicine, 2:1052
lice infestations, 3:1340
vitamin K, 4:2354
American Anorexia/Bulimia Association, Inc., 1:353
American Apitherapy Society, 1:119, 122; 4:2331, 2332
American Art Therapy Association (AATA), 1:148; 2:1244
American Association for the Study of Liver Diseases, 1:467
American Association for Therapeutic Humor, 2:1117
American Association of Acupuncture and Oriental Medicine (AAAOM), 1:187, 500
American Association of Clinical Endocrinologists Medical Guidelines for Clinical Practice for the Evaluation and Treatment of Hyperthyroidism and Hypothyroidism, 2:990
American Association of Colleges of Osteopathic Medicine, 3:1660
American Association of Naturopathic Physicians (AANP), 1:494; 3:1579
American Association of Orthopedic Medicine, 3:1824
American Association of Pastoral Counselors (AAPC), 3:1795
American Association of Poison Control Centers, 1:457, 472; 3:1319
American Association of Sexual Educators, Counselors, and Therapists (AASECT), 4:2033
American bayberry. *See* Bayberry
American biologics, 3:1491
American Board of Chelation Therapy (ABCT), 1:466
American Board of Holistic Medicine (ABHM), 2:1082
American Botanical Council, 1:642; 2:929, 931
American Cancer Society (ACS)
antioxidants, 3:1371, 1374
breast cancer, 1:322, 324, 327
cancer rates, 1:383, 386
chlorella, 1:516
coix, 1:558, 559
colorectal cancer, 1:578, 581, 582
cymatic therapy, 1:650
flower essences, 1:199
Gerson therapy, 1:395; 2:1248
Hoxsey formula, 2:1113, 1114, 1115
immuno-augmentation therapy, 2:1159
leukemia, 3:1332
Livingston-Wheeler therapy, 3:1352, 1353
maitake, 3:1413
ovarian cancer, 3:1672
prostate cancer, 3:1825, 1828
quercetin, 3:1866, 1867
warning signs, 1:387
wheatgrass, 1:396
American cedar. *See* Thuja
American Chemical Society, 3:1488
American Chiropractic Association, 1:507
American College of Advancement in Medicine (ACAM), 1:465, 466
American College of Cardiology, 1:519; 2:1246
American College of Chest Physicians, 1:592
American College of Clinical Thermography (ACCT), 4:2227
American College of Health Science, 3:1577

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

American College of Nurse-Midwives, 1:270
American College of Obstetricians and Gynecologists, 1:249
American College of Occupational and Environmental Medicine, 2:767; 3:1538
American College of Physicians, 1:292
American College of Rheumatology
  fibromyalgia, 2:838, 839
  glucosamine, 2:936
  juvenile rheumatoid arthritis, 2:1251
American College of Sports Medicine, 2:1014, 1226; 4:2425
American Colleges of Osteopathic Medicine, 3:1662
American coneflower. *See* Echinacea
American Council for Headaches Education, 2:1001
American cranberry. *See* Cranberry
American Dance Therapy Association (ADTA), 2:656, 657, 658
American Dental Association (ADA), 1:628; 3:1488
American Diabetes Association (ADA), 2:688
American Dietetic Association (ADA)
  apple cider vinegar, 1:123
  Atkins diet, 1:171
  childhood nutrition, 1:494
  Diamond diet, 2:693
  food exchange diets, 2:688
  high fiber diet, 2:1068
  nutrition, 4:2204
  osteoporosis, 1:305
  phosphorus, 3:1746
  veganism, 4:2319
  vegetarian food guidelines, 3:1614; 4:2321, 2326, 2327, 2328
  Zone diet, 4:2425
American elm. *See* Slippery elm
American Family Physician, 2:891
American ginseng, 1:591; 2:**924–926**
American Heart Association (AHA)
  angina, 1:89
  antioxidants, 3:1374
  cholesterol, 1:518, 519
  dietary fat, 2:786; 3:1646
  EDTA chelation therapy, 1:465
  exercise, 2:804
  fad diets, 2:701
  heart attacks, 2:1010
  heart disease, 2:1015, 1017, 1018, 1019
  high fiber diet, 2:1068
  high sensitivity C-reactive protein test, 2:1071
  hypertension, 2:1131
  ischemia, 2:1222, 1226
  lecithin, 3:1323
  omega-3 fatty acids, 3:1631
  sesame oil, 4:2029, 2030
  smoking, 4:2091
  strokes, 4:2156
American Heart Association diet, 2:1015*t*
American Herbal Products Association (AHPA), 2:1261
American Holistic Medicine Association (AHMA), 2:1082
American honeysuckle. *See* Honeysuckle
American horse chestnut. *See* Horse chestnut
American Institute for Cancer Research, 2:847
American Institute of Homeopathy, 2:1088, 1092, 1096
American Institute of Vedic Studies, 3:1691
American Journal of Clinical Nutrition, 1:58; 3:1323
American Journal of Epidemiology, 3:1866
American Journal of Health-System Pharmacy, 1:149
American Journal of Pharmacy, 4:1980
American Journal of Respiratory and Critical Care Medicine, 2:757
American Lung Association (ALA)
  chronic bronchitis, 1:339
  emphysema, 2:753, 757
  smoking, 4:2091
American Massage Therapy Association
  Russian massage, 3:1960
  shiatsu, 4:2047
  sports massage, 4:2124, 2126
  stone massage, 4:2146
  Swedish massage, 4:2174
American Medical Association (AMA)
  acupuncture, 1:16, 19
  androstenedione, 1:78
  childhood nutrition recommendations, 1:490, 494
  chiropractic, 1:510
  homeopathy and, 2:1086, 1087, 1091, 1096
  Hoxsey formula, 2:1113
  hypertension, 4:2412
  hypnotherapy, 2:1141, 1142
  macrobiotic diet, 3:1398
  multiple chemical sensitivity, 3:1538
  teen nutrition, 4:2203
American Music Therapy Association, 3:1551, 1553
American Natural Hygiene Society, 1:396; 3:1575
American Neurological Association, 3:1387
American nightshade. *See* Phytolacca
American Nurses" Association, 4:2225
American Organization for the Bodywork Therapies of Asia (AOBTA), 1:500
American Oriental Bodywork Therapy Association, 4:2047
American Osteopathic Association (AOA), 3:1658, 1660–1661, 1662
American Osteopathic Foundation, 3:1662
American Osteopathic Healthcare Association, 3:1660
American pennyroyal. *See* Pennyroyal
American Polarity Therapy Association, 3:1775
American Pregnancy Association, 1:299
American Psychiatric Association, 1:240
American Reflexology Certification Board (ARCB), 3:1898
American Reiki Association, 3:1900
American Rheumatism Association, 4:2188
American saffron. *See* Safflower flower
American School of Osteopathy, 3:1658, 1661
American skullcap. *See* Skullcap
American sloe. *See* Black haw
American Society for the Alexander Technique (AmSAT), 1:19
American Society of Clinical Hypnosis (ASCH), 2:1143; 3:1508
American Society of Clinical Oncology, 2:1136
American Society of Reproductive Medicine, 3:1776
American Thoracic Society, 4:2080
American Tinnitus Association, 4:2242
American Vegan Society (AVS), 4:2319
American Veterinary Medical Association (AMVA), 3:1870; 4:2330
American water plantain. *See* Alisma
American white oak. *See* Oak
American Yoga Association (AYA), 1:237, 333
Americans with Disabilities Act, 2:688
Amevive (alefacept), for psoriasis, 3:1838
Amida Raigo triad, 3:1863
Amifostine, for dry mouth, 2:721
Amino acids, 1:**73–76**
  ademetionine and, 1:20
  ADHD, 1:177

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

as antioxidant, 1:111, 112
cataracts, 1:417
gastritis, 2:902
gout, 2:957
juvenile rheumatoid arthritis, 2:1253
mercury poisoning, 3:1489
Parkinson's disease, 3:1708
retinopathy, 3:1919
Amino sugars, 2:935
Amitriptyline, for postherpetic neuralgia, 3:1597
Amla powder, for gum diseases, 2:978
Ammi visnaga. See Khella; Khellin
Ammonia
arginine and, 1:130
for bites and stings, 1:261
intoxication with, 1:546
Amnesia, dissociative, 3:1462
Amoebic infections, 3:1702
Amoracia rusticana. See Horseradish
Amphetamine substance abuse, 4:2160
Amphotericin B, for sinus infections, 4:2070
Ampligen, for chronic fatigue syndrome, 1:534
Amputation, for gangrene, 2:886
AmSAT (American Society for the Alexander Technique), 1:19
Amsel's criteria, 4:2309
Amsler grids, 3:1402
AMVA (American Veterinary Medical Association), 3:1870
Amygdalin, in apricot seed, 1:129–130
Amylases, 2:768; 3:1350
Amyloid precursor protein (APP), 1:65; 2:664
Amyotropic lateral sclerosis (ALS). *See* Lou Gehrig's disease
An mo massage, 1:499
Anacardium, for contact dermatitis, 1:602
Analgesics
arka, 1:132, 133
arnica, 1:135
balm of Gilead, 1:200
black cumin seed extract, 1:273
cayenne, 1:427, 428
chamomile, 1:455
chelidonium, 1:466
club moss, 1:550
coix, 1:557
corydalis, 1:615
cyperus, 1:651
devil's claw, 2:680, 681
eucalyptus, 2:793
evodia fruit, 2:801, 802
feverfew, 1:536, 537
gardenia, 2:894
gastrodia, 2:905
for headaches, 2:1005
for herniated disks, 2:1057
for juvenile rheumatoid arthritis, 2:1253
kava kava, 2:1261
for knee pain, 2:1283
lemongrass, 3:1328, 1329
for low back pain, 3:1366
marijuana, 3:1432
MSM, 3:1530
for multiple chemical sensitivity, 3:1540
myrrh, 3:1560
neem, 3:1588
noni, 3:1605, 1606
oregano, 3:1639
for osteoarthritis, 3:1657
overview, 3:1684–1685, 1686
peppermint, 3:1728
for peripheral neuropathy, 3:1734–1735
phytolacca, 3:1748
for pleurisy, 3:1768
quercetin, 3:1866
for sciatica, 4:2002
sesame oil, 4:2029
for shin splints, 4:2055
for sprains and strains, 4:2128
St. John's wort, 4:2131
stevia, 4:2138
tangerine peel, 4:2195
tea tree oil, 4:2198
for teething, 4:2205
for tendinitis, 4:2210
thuja, 4:2232
thunder god, 4:2235
thyme, 4:2236
for toothaches, 4:2246
turmeric, 1:642; 4:2280
valerian, 4:2312
vitamin E, 4:2350
white peony root, 4:2374
white willow, 4:2375–2376
See also Pain management
Ananas comosus. See Pineapple
Anaphylaxis, 1:54, 56; 4:2331
Anas barbariae hepatis, for common cold, 1:593
Anastrozole, for breast cancer, 1:326
Anatomy of an Illness (Cousins), 2:1116
Anatomy of the Spirit (Myss), 2:763
Ancient cultures
aloe, 1:60
aromatherapy, 1:136–138
auriculotherapy, 1:185
botanical medicine, 1:316
essential oils, 2:787
herbal medicine, 2:1048–1049
labyrinths, 3:1295
marijuana, 3:1430–1431
mugwort, 3:1532–1533
reflexology, 3:1895–1896
thyme, 4:2236
trepanation, 4:2264–2265
white willow, 4:2375
Ancient Greece
artichoke, 1:148
herbal medicine, 2:1048–1049
labyrinths, 3:1295
mint, 4:2118
Androgen replacement, 3:1571, 1572, 1573, 1574
Androgenic alopecia, 2:983, 984
Andrographis, 1:**76–78**
common cold, 1:591
in herbal cold remedies, 2:1046, 1047
sinus infections, 4:2069
Andropause, natural hormone replacement therapy and, 3:1570, 1571, 1573
Androstenediol, 3:1573
Androstenedione, 1:**78–79;** 3:1573
Anemarrhena, 1:**79–82**
Anemia, 1:**82–87**
anise for, 1:94
ashwaganda for, 1:151
chills from, 1:495
codonopsis root for, 1:553
dandelion for, 2:659
dong quai for, 2:718
Ferrum phosphoricum for, 2:1216
ferrum phosphoricum for, 2:828
gymnema for, 2:980
manganese for, 3:1422
muscle cramps and, 3:1549
pyridoxine for, 3:1857
white peony root for, 4:2374
yellow dock for, 4:2406
See also specific types
Anesthetics
acupuncture as, 1:13, 16
for canker sores, 1:399
electroacupuncture as, 2:749
hypnotherapy and, 2:1140, 1141, 1142
local, 3:1597
neural therapy and, 3:1593–1594
for neuralgia, 3:1597
for tennis elbow, 4:2213
vomiting and, 4:2357
yohimbe as, 4:2415
Anethole, in anise, 1:93, 94
Aneurysms, 4:2154, 2155
Angelica, 1:**87–89**
as bitter, 1:267
iron in, 2:1216
irritable bowel syndrome, 2:1220
premenstrual syndrome, 3:1805
stomachaches, 4:2143
in Sun's soup, 4:2171
Angelica archangelica. See Angelica
Angelica atropurpurea. See Angelica
Angelica sinensis. See Dong quai
Angina, 1:**89–93**
bromelain, 1:338
carnitine, 1:402
coleus, 1:566

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Angina *(continued)*
EDTA chelation therapy, 1:464
hawthorn, 2:995, 996
heart disease and, 2:1017
vs. heartburn, 2:1023
iodine, 2:1204
ischemia and, 2:1222, 1224, 1225
khella, 2:1271
kudzu, 2:1291–1292
lachesis, 3:1300
lobelia, 3:1355
magnesium, 3:1405
marijuana, 3:1432
mesoglycan, 3:1490
notoginseng, 3:1608
selenium, 4:2011
Angioedema, defined, 1:54; 2:1071
See also Hives
Angiogenesis theory, 1:410
Angiography
angina, 1:90
atherosclerosis, 1:166
diverticulitis, 2:709
heart disease, 2:1017
ischemia, 2:1224
Angioplasty
angina, 1:92
cerebral vascular insufficiency, 1:448
hawthorn for, 2:996
Angostura bitters, 1:265; 2:916
Anhedonia, schizophrenia and, 4:1994
Animal-assisted therapy. *See* Pet therapy
Animal bites. *See* Bites and stings
Animal-derived enzymes, 2:768, 769
Animals. *See* Veterinary medicine
Anise, 1:*93*, **93–95**
anemia, 1:85
bronchitis, 1:340
common cold, 1:590
cough, 1:619
digestion, 2:704, 705
dysbiosis, 2:724
gastrointestinal gas, 2:899*t*
heartburn, 2:1023
influenza, 2:1187
irritable bowel syndrome, 2:1220
laryngitis, 3:1308
lice infestations, 3:1338
nausea, 3:1583
stomachaches, 4:2143
Anise hyssop. *See* Agastache
Aniseed. *See* Anise
Anisocoria, 1:22
Anisometropia, 3:1314
Ankylosing spondylitis, 1:**95–98,** *96*
low back pain, 3:1363
neck pain, 3:1584, 1585, 1586, 1587
Anma, 4:2045–2046
Annals of Internal Medicine
asthma, 1:155
black walnut, 1:278
chondroitin, 1:411
echinacea, 2:739
Annals of Neurology, 3:1454
Annona muricata, in escharotic treatment, 2:783
Anodynes. *See* Analgesics
Anorexia nervosa, 1:**98–102;** 4:2202–2203
Anoscopy, for hemorrhoids, 2:1033
Anosognosia, schizophrenia and, 4:1994
ANS. *See* Autonomic nervous system
Antabuse. *See* Disulfiram
Antacids
from dolomite, 2:716
hangovers, 2:989
heartburn, 2:1024
hiatal hernia, 2:1062
magnesium in, 3:1405, 1406
stomachaches, 4:2144
Anthelmintics. *See* Worms
Anthemis tinctora, 1:454–455
Anthocyanidins, 3:1740
Anthocyanins, 1:246, 624
Anthocyanosides, 1:238
Anthraquinones
aloe, 1:60, 61
bitters, 1:266
senna, 4:2018, 2020
Anthroposophical medicine, 1:**102–104**
Anti-anxiety agents
for autism, 1:190
borage and, 1:311
for chronic fatigue syndrome, 1:534
for insomnia, 2:1196
for neuralgia, 3:1597
for phobias, 3:1744
for post-traumatic stress disorder, 3:1786
types, 1:116
See also Anxiety
Anti-infective agents
arka, 1:132
aucklandia, 1:178
blessed thistle, 1:289
calendula, 1:382
cinnamon, 1:543
cinnamon for, 1:544
colostrum, 1:583
cyperus, 1:651
echinacea, 2:738
fructooligosaccharides, 2:874
grains-of-paradise, 2:959
honey, 3:1427
Iceland moss, 2:1155
magnetic therapy, 3:1408
manuka honey, 3:1428, 1429
marijuana, 3:1432
myrrh, 3:1561
pau d'arco, 3:1720
peppermint, 3:1728
silver, 1:572
turmeric, 4:2280
Anti-inflammatory agents
bronchitis, 1:340
colitis, 1:571
gout, 2:957
heel spurs, 2:1029
phlebitis, 3:1740
pleurisy, 3:1768
premenstrual syndrome, 3:1806
shin splints, 4:2055
sprains and strains, 4:2128
tendinitis, 4:2210–2211
Anti-inflammatory diets, 1:**104–108;** 2:1202
Anti-leukotrienes, 1:56, 157
Anti-motility agents. *See* Antidiarrheals
Anti-thyroid agents, 2:1139
Antibacterial agents
Allium cepa, 1:58
ashwaganda, 1:152
barberry, 1:202
black cumin seed extract, 1:273
burdock, 1:359
chamomile, 1:455
cornus, 1:613
cyperus, 1:651
for detoxification, 2:676*t*
eucalyptus, 2:793
gardenia, 2:894
ginger, 2:921
goldenseal, 2:948
grapefruit seed extract, 2:965
green tea, 2:969
hibiscus, 2:1063, 1064
honey, 3:1427
hops, 2:1100
lavender, 3:1311
lemon balm, 3:1327
lemongrass, 3:1328
licorice, 3:1342
magnolia, 3:1410
manuka honey, 3:1428, 1429
marijuana, 3:1432
mullein, 3:1536
oak, 3:1620
oregano, 3:1639, 1640
osha, 3:1652
peppermint, 3:1728
prince's pine, 3:1814
psoralea seeds, 3:1834
rosemary, 3:1951
royal jelly, 3:1954
sage, 4:1970
shiitake mushroom, 4:2049
silver, 1:573
spearmint, 4:2119
tea tree oil, 4:2197–2198
thuja, 4:2231
usnea, 4:2297
wasabi, 4:2366
yarrow, 4:2401
Antibiotic resistance. *See* Drug resistance
Antibiotics
acne, 1:8
bedsores, 1:211
bites and stings, 1:261–262

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

blood poisoning, 1:295
boils, 1:303
chlamydia, 1:514
conjunctivitis, 1:595
diaper rash and, 2:694, 695
diarrhea from, 2:698; 4:1963
diverticulitis, 2:710
ear infections, 2:734
earaches, 2:737
epididymitis, 2:775
gastritis, 2:903
gonorrhea, 2:950–951
gum diseases, 2:978
infections, 2:1176
kidney infections, 2:1274
Lyme disease, 3:1386
meningitis, 3:1472
pelvic inflammatory disease, 3:1725
pneumonia, 3:1772
probiotics for, 3:1819
rosacea, 3:1946
scarlet fever, 4:1988
sinus infections, 4:2069, 2070
sore throat, 4:2106
staphylococcal infections, 4:2137
sties, 4:2141
strep throat, 4:2149
swimmer's ear, 4:2177–2178
syphilis, 4:2184–2185
tonsillitis, 4:2245
trichomoniasis and, 4:2268
UTIs, 1:285
whooping cough, 4:2380
yeast infections and, 4:2403, 2404
See also specific types

Anticancer Research (journal), 4:2030

Anticatarrhals, for detoxification, 2:676*t*

Anticholinergic drugs
colitis, 1:571
Ménière's disease, 3:1467
Parkinson's disease, 3:1709

Anticlotting agents. *See* Anticoagulants

Anticoagulants
angelica and, 1:88
arginine as, 1:131
for blood clots, 1:293
borage and, 1:311
bromelain as, 1:337–338
bruises and, 1:342
cordyceps as, 1:608, 609
garlic as, 2:895
for heart attacks, 2:1013
for ischemia, 2:1226
MSM as, 3:1531

Anticonvulsants
bipolar disorder, 1:258
borage and, 1:311
cerebral palsy, 1:444
epilepsy, 2:778, 780
headaches, 2:1005
migraine, 3:1500, 1501
neuralgia, 3:1597
pain, 3:1686
peripheral neuropathy, 3:1735

Antidepressants
ADHD, 1:177
anxiety, 1:116
autism, 1:190
binge eating disorder, 1:241
bipolar disorder, 1:258
bulimia nervosa, 1:355
chronic fatigue syndrome, 1:534
depression, 2:671
headaches, 2:1005
hypercortisolemia, 2:1125
kola nuts and, 2:1288
migraine, 3:1500
narcolepsy, 3:1564
pain, 3:1686
Parkinson's disease, 3:1709
phobias, 3:1744
post-traumatic stress disorder, 3:1786
postpartum depression, 3:1781–1782
premenstrual dysphoric disorder, 3:1483
premenstrual syndrome, 3:1806, 1807
sciatica, 4:2002
seasonal affective disorder, 4:2008

Antidiarrheals
colitis, 1:571
gastroenteritis, 2:908
types, 2:698
See also Diarrhea

Antidotes
activated charcoal, 1:456, 457
arrowroot, 1:142
for chemical poisoning, 1:472–473
homeopathy and, 2:1087, 1218
horehound, 2:1102
reishi mushroom, 3:1903

Antiemetics
arrowroot, 1:142, 143
ashwaganda, 1:152
cyperus, 1:651
for morning sickness, 3:1517
for motion sickness, 3:1521–1522
pinellia, 3:1757
for vomiting, 4:2359

Antifungal agents
athlete's foot, 1:169
dandruff, 2:661
diaper rash, 2:695
fungal infections, 2:877, 1176
jock itch, 2:1241
vulvovaginal candidiasis, 4:2310
yeast infections, 4:2404, 2405
See also Fungal infections

Antihistamines
allergies, 1:55
black cumin seed extract as, 1:273
children's cold remedy ban, 2:1045
common cold, 1:592
earaches, 2:737
hay fever, 2:999
hives, 2:1072
itching, 2:1229
Ménière's disease, 3:1467
motion sickness, 3:1521–1522
multiple chemical sensitivity, 3:1540
rashes, 3:1882
sneezing, 4:2096

Antihypertensive agents
hot flashes, 2:1111
hypercortisolemia, 2:1125
hypertension, 2:1134–1135
See also Hypertension

Antimalarial agents
mugwort, 3:1534
neem, 3:1588
overview, 3:1417
wormwood, 3:1416

Antimicrobial agents. *See* Anti-infective agents

Antimonium tartaricum
chickenpox, 1:478
cough, 1:619
impetigo, 2:1163

Antineoplastic agents. *See* Cancer treatment

Antineoplaston therapy, 1:390; 3:1671

Antioxidants, 1:**108–113**
for aging, 1:30, 108, 109
Allium cepa, 1:58
for angina, 1:91
Ayurvedic compounds, 1:195
barley, 1:205
bee pollen, 1:214
bioflavonoids, 2:1058
cancer and, 3:1370–1371
for cataracts, 1:416
colorectal cancer prevention, 1:581–582
copper, 1:603, 604
for dementia, 2:665
evening primrose oil, 2:800
for fever, 2:832
5-HTP, 2:844
food sources, 1:109*t*
for gastritis, 2:902
for glaucoma, 2:933
glutathione, 2:940
grape seed extract, 2:960–961
green tea, 2:967
hawthorn, 2:996
for hearing loss, 2:1009
for heart disease, 2:1018, 1019
for heavy metal poisoning, 2:1027
honey, 3:1427
for ischemia, 2:1225
for jaundice, 2:1236
for jet lag, 2:1238
for juvenile rheumatoid arthritis, 2:1253
kelp, 2:1269
Korean ginseng, 2:928

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Antioxidants *(continued)*
leukemia and, 3:1333–1334
linoleic acid, 3:1348
lutein, 3:1374
lycopene, 3:1377, 1378
for meningitis, 3:1472
minerals, 1:461–462
mugwort, 3:1534
for multiple sclerosis, 3:1543
oak and, 3:1620
for panic disorders, 3:1698
for Parkinson's disease, 3:1708
peppermint, 3:1731
pine bark extract, 3:1755–1756
quercetin, 3:1865
resveratrol, 3:1913
for retinopathy, 3:1919
for rheumatoid arthritis, 3:1926
saffron, 4:1968
sargassum seaweed, 4:1976
selenium, 4:2011
for seniors, 4:2017
for skin cancer, 4:2074
slippery elm, 4:2089
for smoking cessation, 4:2093
spirulina, 4:2123
for strokes, 4:2156
synthetic, toxicity of, 1:473
for trichomoniasis, 4:2268
for vaginitis, 4:2309
See also Bioflavonoids; Carotenoids

Antiparasitic agents, 3:1705
See also Parasitic infections

Antiparkinson agents
sleep disorders, 4:2086
tremors, 4:2263

Antiperspirants, 1:301

Antipruritic agents
pityriasis rosea, 3:1760
prickly heat, 3:1809
See also Itching

Antipsoric remedies, *calcarea carbonica* as, 1:376

Antipsychotic agents
autism, 1:190
bipolar disorder, 1:258
schizophrenia, 4:1996–1998

Antipyretics, 2:832
See also Fever

Antiretroviral treatment, for AIDS, 1:37

Antirheumatic agents, 3:1927

Antiseptic agents
aucklandia, 1:178
bitters, 1:267
buchu, 1:347
chrysanthemum, 1:535
coix, 1:557
gardenia, 2:894
goldenseal, 2:948
horehound, 2:1102
juniper, 2:1249
lemongrass, 3:1329
lysimachia, 3:1391
magnolia, 3:1410
manuka honey, 3:1427
myrrh, 3:1561
ophiopogon, 3:1637
oregano, 3:1639, 1640
peppermint, 3:1731
for prickly heat, 3:1809
for swimmer's ear, 4:2177, 2178
tea tree oil, 4:2197, 2198
thyme, 4:2236
uva ursi, 4:2305
for wounds, 4:2399
yarrow, 4:2401
yellow dock, 4:2406

Antisocial personality disorder, ADHD and, 1:177

Antispasmodics
aucklandia, 1:178
belladonna, 1:222
black haw, 1:276
blue cohosh, 1:298
boneset, 1:306
for bruxism, 1:344
calendula, 1:382
catnip, 1:419
chamomile, 1:455
chelidonium, 1:466
cicada, 1:541
cramp bark, 1:622
fennel, 2:824
gentiana, 2:916
goldenrod, 2:946, 947
hibiscus, 2:1064
for inflammatory bowel disease, 2:1184
kava kava, 2:1261
khella, 2:1271
lavender, 3:1311
lemon balm, 3:1326
mugwort, 3:1533
mullein, 3:1536
for neuralgia, 3:1597
peppermint, 3:1730
thyme, 4:2236
valerian, 4:2312
white peony root, 4:2374
wild cherry, 1:475
yarrow, 4:2402

Antitoxins
botulism, 2:861–862
tetanus, 4:2216

Antitussives
children's cold remedy ban, 2:1045
common cold, 1:592
cough, 1:619
fritillaria, 2:869
schisandra, 4:1989
See also Cough

Antivenin, 1:262

Antiviral agents
cold sores, 1:563–564
genital herpes, 2:912
hepatitis, 2:1039
HIV, 1:39
infections, 2:1176
influenza, 2:1188–1189
Kaposi's sarcoma, 2:1259
meningitis, 3:1472
quercetin, 3:1866
shingles, 4:2053–2054
See also Virus diseases

Anuvasana basti. *See* Enemas

Anxiety, 1:**113–117**
ademetionine for, 3:1493
anemarrhena for, 1:80
arka for, 1:133
arsenicum album for, 1:144
asthma and, 1:154
bugle weed for, 1:351
during childbirth, 1:484
damiana for, 2:653
dance therapy for, 2:657
5-HTP for, 2:844
gardenia for, 2:893
gelsemium for, 2:909
geriatric massage for, 2:917
gotu kola for, 2:953
Gulf War syndrome and, 2:974
homeopathy for, 2:1094
hops for, 2:1100
hypnotherapy for, 2:1141; 3:1508
hyssop for, 2:1152
Jamaican dogwood for, 2:1231
kava kava for, 2:1261
lachesis for, 3:1299, 1300
lacto-ovo vegetarianism for, 3:1302
lycopus for, 3:1383
magnesium for, 3:1406
magnolia for, 3:1410
marijuana for, 3:1432
massage therapy for, 3:1440, 1441
meditation for, 3:1448, 1449, 1451
mistletoe for, 3:1510
mugwort for, 3:1533
multiple chemical sensitivity and, 3:1539
music therapy for, 3:1552
neem for, 3:1589
nutmeg for, 3:1610
omega-3 fatty acids for, 3:1632
ophiopogon for, 3:1637
passionflower for, 3:1714, 1716
peppermint for, 3:1731
periwinkle for, 3:1736
pregnancy massage for, 3:1802
pyridoxine for, 3:1857
rhodiola rosea for, 3:1931
sage for, 4:1970
sesame oil for, 4:2030
shiatsu for, 4:2046, 2047
Siberian ginseng for, 2:931
skullcap for, 4:2075
squawvine for, 4:2129
St. John's wort for, 4:2131
suma for, 4:2165
tangerine peel for, 4:2196

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Thai massage for, 4:2218
theanine for, 4:2220, 2221
therapeutic touch for, 4:2223, 2224
thuja for, 4:2232
thunder god vine for, 4:2235
traditional African medicine for, 4:2253
turmeric for, 4:2280
valerian for, 4:2312
veganism for, 4:2319
vegetarianism for, 4:2326
wild oat for, 4:2385
witch hazel for, 4:2389
See also Anti-anxiety agents
Anxiety Disorders Association of America, 1:113, 115, 117
Anxiolytics. *See* Anti-anxiety agents
AOA (American Osteopathic Association), 3:1658, 1660–1661, 1662
AOBTA (American Organization for the Bodywork Therapies of Asia), 1:500
Aoki, Hiroyuki, 4:2056
Apache people, yucca use, 4:2417–2418
Apamin, 1:120
Apathy, dementia and, 2:665
Apgar scores, cerebral palsy and, 1:442
Aphanizomenon flos-aquae (AFA), 1:520
Aphrodisiacs
cinnamon, 1:544
cotton root bark, 1:616
damiana, 2:653
epimedium for, 2:781
grains-of-paradise, 2:959
kava kava, 2:1260
nutmeg, 3:1610
ophiopogon, 3:1638
parsley, 3:1712
wild oat, 4:2384
yohimbe, 4:2415
Apidra (insulin), 2:690
Apis, 1:*117*, **117–119**
allergies, 1:55
astigmatism, 1:160
bites and stings, 1:261
chickenpox, 1:478
genital herpes, 2:912
hives, 2:1072
in homeopathy, 2:1083*t*
measles, 3:1447
ovarian cysts, 3:1676
pelvic inflammatory disease, 3:1724
prickly heat, 3:1809
rashes, 3:1882
swimmer's ear, 4:2177
Apitherapy, 1:**119–122**, *120;* 3:1953–1955, *1954;* 4:2330–2332
Apitherapy News, 3:1427
Apium graveolens. *See* Celery
Aplastic anemia, 1:84, 85, 86; 4:2063
Apocrine sweat glands, 1:300, 301
ApoE gene, Alzheimer's disease and, 1:65
Apolipoprotein E, memory loss and, 3:1462
Apoptosis, curcumin and, 1:642
APP (amyloid precursor protein), 1:65
Appendectomy, inflammatory bowel disease and, 2:696
Appendicitis, lachesis for, 3:1300
Appetite, Shangri-la diet and, 4:2037, 2039
Appetite stimulants
chicory, 1:481
Chinese yams, 1:506, 507
cinnamon, 1:543
evodia fruit, 2:801
fennel, 2:824
fenugreek, 2:826
fritillaria, 2:870
gentiana, 2:916
hops, 2:1100
horehound, 2:1102
Iceland moss, 2:1155
lycopodium, 3:1380
mugwort, 3:1533
osha, 3:1653
peppermint, 3:1729
red clover, 3:1891
royal jelly, 3:1954
sheep sorrel as, 4:2042
Appetite suppressants
hoodia, 2:1099
kola nuts, 2:1287
psyllium, 3:1850
for weight loss, 3:1625
Apple cider vinegar, 1:**122–124;** 2:978
Apple juice, for warts, 4:2363
Apple tree bark tea, for vomiting, 4:2358
Appliances, orthopedic. *See* Orthopedic braces
Applied kinesiology, 1:**124–128**
Applied psychophysiological feedback. *See* Biofeedback
Aprepitant, for motion sickness, 3:1522
Apricot seed, 1:**128–130;** 3:1492
Apricot vine. *See* Passionflower
Apthous stomatitis/ulcers. *See* Canker sores
Aqueous humor, glaucoma and, 2:932
Arab medicine. *See* Unani-tibbi
Arabinogalactans, for dysbiosis, 2:723
Araceae pinellia ternatae. *See* Pinellia
Arachidonic acid (AA)
asthma and, 1:156
inflammation and, 1:107
sources, 2:784
Aranyakas (Vedic text), 4:2414
Arava (leflunomide), for juvenile rheumatoid arthritis. *See* Leflunomide
Arbor vitae. *See* Thuja
ARCB (American Reflexology Certification Board), 3:1898
Archana bhakti, 1:236
Archangel Vitamin, Health and Nutrition Center, 4:2022
Archives in Internal Medicine, 4:2342
Archives of General Psychiatry, 3:1762
Archives of Internal Medicine, 1:589
Archives of Investigative Medicine, 3:1811
Archives of Pharmaceutical Research, 3:1812
Arctic Root, 3:1930
Arctium species. *See* Burdock root
Arctostaphylos uva ursi. *See* Uva ursi
ARE (Association for Research and Enlightenment), 1:424, 425
Argentum nitricum
conjunctivitis, 1:594
holistic dentistry and, 2:1077
menopause, 3:1476
for newborns, 1:572
Arginine, 1:**130–132**
cold sores and, 1:563
cuts and scratches, 1:648
genital herpes and, 2:911
hypertension, 2:1134
infertility, 2:1180
interstitial cystitis, 2:1202
research, 1:75
Argyria, 1:573
Ariboflavinosis, 3:1939
Aricept (donepezil), for Alzheimer's disease, 2:666
Arimidex (anastrozole), for breast cancer, 1:326
Aristophanes, 3:1726
Aristotle, 3:1427; 4:2118
Arka, 1:**132–134**
Armeniaca vulgaris. *See* Apricot seed
Armillaria mushroom, 2:904, 905
Armour Thyroid, 2:990
Armstrong, John W., 4:2296
Arnica, 1:*134*, **134–136**
bruises, 1:342
burns, 1:362
carpal tunnel syndrome, 1:409
fractures, 2:864
frostbite, 2:872
in homeopathy, 2:1083*t*
laryngitis, 3:1309
low back pain, 3:1365
pain, 3:1685
sprains and strains, 4:2128
tennis elbow, 4:2213
wounds, 4:2399

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Aromasin (exemestane), for breast cancer, 1:326
Aromatase inhibitors, for breast cancer, 1:326
Aromatherapie: les huiles essentielles hormones végétales (Gattefossé), 1:138
Aromatherapie, traitement des maladies par les essences des plantes (Valnet), 1:138; 2:788
Aromatherapy, 1:**136–142;** 2:787–788
anorexia nervosa, 1:100
anxiety, 1:115
asthma, 1:157
athlete's foot, 1:169
bedwetting, 1:213
botanical medicine and, 1:317–318
bronchitis, 1:340
childbirth, 1:485
color therapy and, 1:578
constipation, 1:599
cradle cap, 1:620
depression, 2:670
dysmenorrhea, 2:730
eczema, 2:743
emphysema, 2:754–755
epididymitis, 2:775
epilepsy, 2:777
eucalyptus in, 2:793–794
fatigue, 2:816, 817
fever, 2:832
fibromyalgia, 2:839
fungal infections, 2:877
hangovers, 2:988
headaches, 2:1002*t*, 1004
heart attacks, 2:1012
heart disease, 2:1018
holistic dentistry and, 2:1077
hypertension, 2:1133
indigestion, 2:1167*t*
infections, 2:1176
insomnia, 2:1196
irritable bowel syndrome, 2:1220
jaundice, 2:1236
juvenile rheumatoid arthritis, 2:1253
knee pain, 2:1283
lavender in, 3:1311, 1312
lemon balm in, 3:1327
limbic system and, 1:*138*
low back pain, 3:1365
Ménière's disease, 3:1466
menstruation disorders, 3:1483
migraine, 3:1500
mononucleosis, 3:1515
multiple chemical sensitivity, 3:1540
multiple sclerosis, 3:1543
nausea, 3:1583
obsessive-compulsive disorder, 3:1629
oils for, 1:137*t*
panic disorders, 3:1698
peppermint in, 3:1731–1732
peptic ulcers, 4:2286
phobias, 3:1743
pityriasis rosea, 3:1760
pleurisy, 3:1768
post-traumatic stress disorder, 3:1785
pregnancy, 3:1799
premenstrual syndrome, 3:1805, 1806
rashes, 3:1882
rheumatic fever, 3:1922
rose in, 3:1948
rosemary in, 3:1951
sexual dysfunction, 4:2033
sick building syndrome, 4:2059
sinus infections, 4:2069
sleep disorders, 4:2085
smoking cessation, 4:2093
snoring, 4:2098
sore throat, 4:1987, 2106
stomachaches, 4:2144
strep throat, 4:2148
stress, 4:2151
tangerine peel in, 4:2196
thuja in, 4:2232
trichotillomania, 2:984
vomiting, 4:2359
warts, 4:2362–2363
wheezing, 4:2372
whooping cough, 4:2380
wormwood in, 4:2396
See also Essential oils
Aromatic wintergreen. *See* Wintergreen
Arrhythmia. *See* Cardiac arrhythmia
Arrow wood. *See* Buckthorn
Arrowroot, 1:**142–143;** 3:1809; 4:2143
Arsenic poisoning, 2:1026–1027
Arsenic trioxide. *See* Arsenicum album
Arsenicum album, 1:**143–145**
anxiety, 1:115
asthma, 1:157
conjunctivitis, 1:594
fever, 4:1987
food poisoning, 2:861
gastroenteritis, 2:907
hay fever, 2:999
heartburn, 2:1023
in homeopathy, 2:1083*t*
measles, 3:1447
nausea, 2:1207; 3:1583
pelvic inflammatory disease, 3:1724
pityriasis rosea, 3:1760
shingles, 4:2053
sinus infections, 4:2069
sleep disorders, 4:2085
tonsillitis, 4:2245
vomiting, 4:2358
wheezing, 4:2372
Arsenius acid. *See* Arsenicum album
d'Arsonval, Arséne, 2:699
The Art of Aromatherapy (Tisserand), 1:138
Art supplies, for art therapy, 1:147
Art Therapist, Registered (ATR) certification, 1:148; 2:1245
Art therapy, 1:**145–148;** 4:2152
Art Therapy Credentials Board (ATCB), 1:148; 2:1244–1245
Artemisia, The Association for Anthroposophical Renewal of Healing, 1:104
Artemisia absinthium. See Wormwood
Artemisia cina
whooping cough, 4:2379
worms, 4:2393
Artemisia herba-alba. See Wormwood
Artemisia vulgaris. See Mugwort
Artemisinin
for malaria, 3:1416, 1534; 4:2395–2396
in wormwood, 4:2395–2396
Arteriosclerosis, 1:165
See also Atherosclerosis
Arthralgia
apple cider vinegar for, 1:123
applied kinesiology and, 1:126
cuscuta for, 1:645
dandelion for, 2:659
devil's claw for, 2:681
diathermy for, 2:699
essential oils for, 2:788
eucalyptus for, 2:793, 794
eucommia bark for, 2:795
gastrodia for, 2:905
glucosamine for, 2:935
gotu kola for, 2:954
grape seed extract for, 2:961
Hellerwork for, 2:1030
Hepar sulphuris for, 2:1036
homeopathy for, 2:1094
juniper for, 2:1250
kali bichromium for, 2:1255
ledum for, 3:1324
lycopodium for, 3:1380, 1381
magnetic therapy for, 3:1408–1409
marsh mallow for, 3:1435
mugwort for, 3:1533
noni for, 3:1605
oxygen therapy for, 3:1680
prolotherapy for, 3:1823
Rolfing for, 3:1941
St. John's wort for, 4:2132
systemic lupus erythematosus and, 4:2187
Thai massage for, 4:2218
therapeutic touch for, 4:2223
valerian for, 4:2312
wormwood for, 4:2396
yucca for, 4:2418
Arthritis
ademetionine for, 3:1493
apitherapy for, 1:121–122; 4:2331

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

apple cider vinegar for, 1:123
ashwaganda for, 1:151
boneset for, 2:797
boron and, 1:312–313
boswellia for, 1:314, 315
bromelain for, 1:337, 338
chamomile for, 1:455
chymotrypsin for, 1:539
coix for, 1:557, 559
cornus for, 1:613
cramp bark for, 1:622
dandelion for, 2:659
devil's claw for, 2:680, 681, 682
diathermy for, 2:699
dizziness, 2:714
eucalyptus for, 2:793
eucommia bark for, 2:795
feverfew for, 2:833
flaxseed for, 2:846
French green clay for, 2:866
gentiana for, 2:916
geriatric massage for, 2:917
ginger for, 2:922
grape seed extract for, 2:961
green tea for, 2:968
guggul for, 2:970
homeopathy for, 2:1086, 1094
horsetail for, 2:1106
hypnotherapy for, 2:1141
iodine for, 2:1204
juniper for, 2:1249, 1250
kava kava for, 2:1261
Kelley-Gonzalez diet for, 2:1267
kelp for, 2:1269
knee pain and, 2:1281
kombucha for, 2:1290
licorice for, 3:1342
linoleic acid for, 3:1348
lobelia for, 3:1355
Lyme disease and, 3:1385
manganese for, 3:1422
marsh mallow for, 3:1435
massage therapy for, 3:1440
McDougall diet for, 3:1443
meditation for, 3:1449
mesoglycan for, 3:1490
metabolic therapies for, 3:1491
mistletoe for, 3:1510
myotherapy for, 3:1558
nettle for, 3:1591
neural therapy for, 3:1594
neurolinguistic programming for, 3:1598
noni for, 3:1605
notoginseng for, 3:1609
nutritional supplements for, 3:1685
ortho-bionomy for, 3:1649
osteopathy for, 3:1658
panchakarma for, 3:1689
pau d'arco for, 3:1719, 1720
peppermint for, 3:1731
pine bark extract for, 3:1756
potassium and, 3:1789
prolotherapy for, 3:1823
psoriatic, 3:1836, 1837
pulsatilla for, 3:1852, 1853
quercetin for, 3:1865, 1866
red clover for, 3:1891
reiki for, 3:1900
reishi mushroom for, 3:1903
rheumatic fever and, 3:1921, 1922, 1924
rhus toxicodendron for, 3:1936
Rosen method for, 3:1953
Russian massage for, 3:1959
shiatsu for, 4:2046
St. John's wort for, 4:2132
sulfur for, 4:2163
Swedish massage for, 4:2172, 2174
systemic lupus erythematosus and, 4:2187
tea tree oil for, 4:2198
temporomandibular joint syndrome and, 4:2206
thuja for, 4:2231
Tibetan medicine for, 4:2239
tomatoes and, 3:1379
trigger point therapy for, 4:2270
tui na massage for, 4:2257
turmeric for, 1:642
veganism for, 4:2319
vegetarianism for, 4:2326
Wigmore diet for, 4:2382
wintergreen for, 4:2387
yucca for, 4:2418
See also Osteoarthritis; Rheumatoid arthritis
Arthritis Foundation, 4:2235
Arthritis Today, 2:968
Arthrography, for temporomandibular joint syndrome and, 4:2207
Arthrokinetics, Aston-Patterning and, 1:161
Artichoke, 1:**148–150**
gallstones, 2:880
jaundice, 2:1236
strokes, 4:2157
Articulatory techniques (osteopathy), 3:1660
Artificial disk replacement, 2:1057
Artificial food colorings, 1:469; 2:702*t*
Artificial heart valves, hemolysis and, 2:1234
Artificial insemination, 2:1181
Artificial sweeteners
chemical poisoning and, 1:469
fructooligosaccharides, 2:874
stevia as, 4:2138–2139
Artificial tears, for Sjögren's syndrome, 4:2072
Artress, Lauren, 3:1296–1297
Arum metallicum, for depression, 2:671
Asafoetida, for stomachaches, 4:2143, 2144
Asanas. *See* Physical postures
Asbestos, lung cancer and, 3:1368–1369
ASC-US (Atypical Squamous Cells of Undetermined Significance), 1:450
Ascariasis, hibiscus for, 2:1064
Ascending bladder infections, 1:283
Ascending foods (traditional Chinese medicine), 1:503
Ascending paralysis. *See* Guillain-Barré syndrome
ASCH (American Society of Clinical Hypnosis), 2:1143; 3:1508
Asclepias tuberosa. *See* Butterflyweed
Ascorbic acid. *See* Vitamin C
Asgandh. *See* Ashwaganda
Ash bark, for worms, 4:2393
Ashtanga yoga, 2:804, 993; 4:2412
Ashwaganda, 1:*150*, **150–153**
in herbal cold remedies, 2:1046
infertility, 2:1181
seniors, 4:2017
Asian diet, for cholesterol control, 1:520
Aspartame, 2:702*t*
Aspartic acid, for gout, 2:957
Aspen flower essence, 1:198; 2:850*t*, 851
Aspergillis infections
gluten, 2:945
sinus infections, 4:2068
swimmer's ear, 4:2176
Asphyxia, cerebral palsy and, 1:441
Aspiration, cerebral palsy and, 1:444
Aspirin
angina, 1:91
chickenpox and, 1:478
hangovers, 2:989
headaches, 2:1005
heart attacks, 2:1013, 1014
heart disease, 2:1018
ischemia, 2:1225, 1226
rheumatoid arthritis, 3:1927
strokes, 4:2157
vs. white willow, 4:2376, 2377
Ass ear. *See* Comfrey
Associated Bodywork and Massage Professionals, 4:2146
Association for Applied Psychophysiology and Biofeedback, 1:243; 3:1842
Association for Research and Enlightenment (ARE), 1:424, 425
Association of Reflexologists, 3:1898
Ass's foot. *See* Coltsfoot
Astaxanthin, 1:405
Asthma, 1:**153–159**
acidophilus for, 1:5
Allium cepa for, 1:58
American ginseng for, 2:924
anise for, 1:94
apitherapy for, 4:2331
apple cider vinegar for, 1:123

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Asthma *(continued)*
arsenicum album for, 1:144
ashwaganda for, 1:151
belladonna for, 1:221
black haw and, 1:276–277
boswellia for, 1:314, 315
bromelain for, 1:338
Buteyko method for, 1:367–370
chickweed for, 1:480
chrysanthemum for, 1:536
cinnamon for, 1:544
cnidium seeds for, 1:552
codonopsis root for, 1:553
coleus for, 1:565, 566
coltsfoot for, 1:585
cramp bark for, 1:622
craniosacral therapy for, 1:627
damiana for, 2:653
environmental therapy for, 2:765
ephedra for, 2:770, 771
epimedium for, 2:781
eucalyptus for, 2:793, 794
evening primrose oil for, 2:799
feverfew for, 1:536; 2:833
fish oil for, 2:841
fritillaria for, 2:869
gamma-linolenic acid for, 2:882
ganoderma for, 2:888
garlic for, 2:896
gelsemium for, 2:909
Gerson therapy for, 2:919
ginkgo for, 2:922
glucosamine for, 2:936
glutathione for, 2:940
goldenrod for, 2:947
grape seed extract for, 2:961
guided imagery for, 3:1508
Gulf War syndrome and, 2:974
homeopathy for, 2:1094
honeysuckle for, 2:1098
horsetail for, 2:1106
hyssop for, 2:1152
ignatia for, 2:1157
ipecac for, 2:1207
Kampo medicine for, 2:1257
kava kava for, 2:1260, 1261
khella for, 2:1271
kola nuts for, 2:1287
Korean ginseng for, 2:928
ledum for, 3:1325
lobelia for, 3:1354, 1355
lomatium for, 3:1356, 1357
lomilomi for, 3:1358
lycium fruit for, 3:1376
magnesium for, 3:1405, 1406
magnolia for, 3:1410
manganese for, 3:1422
marijuana for, 3:1432
marsh mallow for, 3:1435
massage therapy for, 3:1440
meditation for, 3:1449
Mediterranean diet for, 3:1454
mistletoe for, 3:1510, 1511
motherwort for, 3:1518
MSM for, 3:1530
mullein for, 3:1536
naturopathic medicine for, 3:1580
nettle for, 3:1592
neural therapy for, 3:1594
noni for, 3:1605
occupational factors, 1:153*t*
omega-3 fatty acids for, 3:1632
osteopathy for, 3:1658
ox-eye daisy for, 1:536
panchakarma for, 3:1689
passionflower for, 3:1715
peppermint for, 3:1730
pinellia for, 3:1757, 1758
probiotics for, 3:1820
pulsatilla for, 3:1852
pyridoxine for, 3:1857
qigong for, 3:1859
red cedar-induced, 3:1890
red clover for, 3:1891
reiki for, 3:1900
reishi mushroom for, 3:1903
relaxation therapy for, 3:1906
Rosen method for, 3:1952, 1953
Russian massage for, 3:1959
selenium for, 4:2009
skullcap for, 4:2075
Swedish massage for, 4:2172
symptoms, 1:54
therapeutic touch for, 4:2223, 2224
thuja for, 4:2232
Tibetan medicine for, 4:2239
traditional African medicine for, 4:2253
triggers for, 1:153*t*, 154
veganism for, 4:2319, 2320
vegetarianism for, 4:2326
vitamin B12 for, 4:2336
vitamin C for, 4:2341*t*, 2342
wasabi for, 4:2366
wheezing and, 1:154–155; 4:2371
wild cherry for, 1:475
yerba santa for, 4:2408
yoga for, 2:993; 4:2409
yucca for, 4:2418
Asthma weed. *See* Lobelia
Astigmatism, 1:**159–161**
Aston, Judith, 1:161, 162
Aston Paradigm Corporation, 1:161, 162
Aston-Patterning, 1:**161–163,** 610; 3:1525
Astra essence, 1:409, 645
Astral body (anthroposophical medicine), 1:103
Astralagus, 1:*163,* **163–165**
anemia, 1:85
atractylodes with, 1:174
chemotherapy support, 1:164; 2:1042
chronic fatigue syndrome, 1:533
common cold, 1:591, 593
croup, 1:636
in herbal cold remedies, 2:1046
influenza, 2:1188, 1190
Keshan disease, 4:2010
lycopus, 3:1383
lymphomas, 3:1420
mononucleosis, 3:1514
ovarian cancer, 3:1671
ovarian cysts, 3:1676
rhinitis, 3:1928
seniors, 4:2017
tonsillitis, 4:2245
Astringent tastes, in Ayurvedic medicine, 1:194–195
Astringents
bayberry, 1:208
blessed thistle, 1:288
boneset, 1:306
bugle weed, 1:351
catnip, 1:419
clary sage, 1:139
cnidium seeds, 1:551
goldenseal, 2:948
horse chestnut, 2:1105
lemongrass, 3:1329
lysimachia, 3:1391
mullein, 3:1536
nettle, 3:1591
overview, 2:705
periwinkle, 3:1736
prince's pine, 3:1814
raspberry, 3:1883
rosemary, 3:1951
sage, 4:1970
uva ursi, 4:2305
wild cherry, 1:475
witch hazel, 4:2388, 2389
yellow dock, 4:2406
Astroviruses, gastroenteritis from, 2:906
Asymptomatic neurosyphilis, 4:2182
Ataxic motor impairment, 1:442, 444
ATCB (Art Therapy Credentials Board), 1:148
Atherectomy, 2:1019, 1226
Atherosclerosis, 1:**165–168**
angina and, 1:90
cerebral vascular insufficiency and, 1:446–447, 448
EDTA chelation therapy for, 1:464, 465
flaxseed for, 2:846–847
fo ti for, 2:854
gangrene and, 2:885, 886
ganoderma for, 2:888
garlic for, 2:895
Gerson therapy for, 2:919
ginger for, 2:921
grape seed extract for, 2:961
guggul for, 2:970
heart attacks and, 2:1010, 1012, 1014
heart disease and, 2:1015, 1016
hypertension and, 2:1132, 1133
impotence and, 2:1164
iodine for, 2:1204
ischemia and, 2:1222–1223
khella for, 2:1271

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

lacto-ovo vegetarianism for, 3:1303
lysine for, 3:1392
macrobiotic diet for, 3:1397
magnesium and, 3:1405
meditation for, 3:1449
mesoglycan for, 3:1490
quercetin for, 3:1866
Raynaud's syndrome and, 3:1886
selenium for, 4:2011
sesame oil for, 4:2029
theanine for, 4:2221
vegetarianism for, 4:2328
vitamin B12 for, 4:2336
yoga for, 2:993
Athetoid cerebral palsy, 1:441, 442
Athletes
adolescent, 4:2202
amenorrhea and, 3:1480
androstenedione use, 1:78
bee pollen use, 1:215
beta-methylbutyric acid use, 1:224
boron use, 1:312, 313
bulimia nervosa in, 1:353
choline use, 1:522
colostrum use, 1:584
creatine use, 1:75, 628, 629–630
Feldenkrais method for, 2:819
fungal infections, 2:876
glutamine for, 2:938
inositol for, 2:1192
Korean ginseng for, 2:927, 928
medium-chain triglycerides for, 3:1456–1457
MSM for, 3:1530
muscle cramps in, 3:1549
myotherapy for, 3:1558
Pilates for, 3:1750, 1751
Rolfing for, 3:1941
safflower use, 4:1966
Siberian ginseng for, 2:930, 931
sports massage, 4:2124–2126
suma use, 4:2165
Swedish massage for, 4:2173, 2174
Trager psychophysical integration for, 4:2259
vanadium use, 4:2313, 2314
Athlete's foot, 1:**168–169;** 2:876
arrowroot for, 1:142
cinnamon for, 1:543
garlic for, 2:896
grapefruit seed extract for, 2:966
lemongrass for, 3:1329
manuka honey for, 3:1428
myrrh for, 3:1561
neem for, 3:1588
oregano for, 3:1639
red clover for, 3:1891
tea tree oil for, 4:2198
thyme for, 4:2236
ATI (Alexander Technique International), 1:19
Ativan, for epilepsy, 2:778
Atkins, Robert C., 1:169, 170, *170;* 4:2315
Atkins Advantage, 1:170
Atkins diet, 1:**169–173;** 3:1816
Atma-nivedana bhakti, 1:236
Atomidine, 2:1204–1205
Atomoxetine, 1:177
Atopic asthma, 1:154
Atopic dermatitis, defined, 2:673, 741
See also Eczema
Atopy, worms and, 4:2393
ATR (Art Therapist, Registered) certification, 1:148; 2:1245
Atractylodes, 1:**173–174,** 591
Atretol. *See* Carbamazepine
Atropa belladonna. See Belladonna
Atrophic gastritis, 2:901
See also Gastritis
Atrophic vaginitis, 4:2307, 2309
Atropine
as antidote, 1:472
from belladonna, 1:221, 222
for Ménière's disease, 3:1467
for mushroom poisoning, 2:862
Attention-deficit hyperactivity disorder (ADHD), 1:**174–178**
Bach flower remedies for, 2:853
biofeedback for, 1:245; 3:1507
chiropractic for, 1:510, 511
craniosacral therapy for, 1:627
vs. dyslexia, 2:727
gamma-linolenic acid for, 2:882
ginkgo for, 3:1322
gluten-free diet for, 2:942
gymnema for, 2:980
hawthorn for, 2:996
hypnotherapy for, 2:1142
magnesium for, 3:1405, 1406
notoginseng for, 3:1609
omega-3 fatty acids for, 3:1632
spirulina for, 4:2123
St. John's wort for, 3:1322
urine therapy for, 4:2295
Attunements, in reiki, 3:1902
Atwater, W. O., 1:487; 4:2200
Atypical angina, 1:90
Atypical Squamous Cells of Undetermined Significance (ASC-US), 1:450
Aucklandia, 1:**178–179**
Audioblox system, 2:727
Audiograms. *See* Hearing tests
Audiological tests. *See* Hearing tests
Audiotapes, in sound therapy, 4:2110
Auditory hallucinations, schizophrenia and, 4:1994
Auditory integration training (AIT), 1:**179–181,** 190; 2:1009; 4:2107–2108, 2110
Auditory organization, 1:180
Auditory seizures, 2:776
Auguthosma betulina. See Buchu
Aura color therapy, 1:182–183
Aura imaging photography, 1:182
Aura therapy, 1:**181–185,** *182*
Auras
color therapy and, 1:578
defined, 1:182
epilepsy and, 2:776, 780
flower essences and, 2:853
Kirlian photography and, 1:182; 2:1280
overview, 1:184
Auriculotherapy, 1:**185–188,** *186*
ADHD, 1:177
defined, 1:17
pleurisy, 3:1768
rashes, 3:1882
rhinitis, 3:1929
stomachaches, 4:2144
vomiting, 4:2358
whooping cough, 4:2380
Aurum, for syphilis, 4:2184
Australia Federal Court, 3:1873
Australian fever tree. *See* Eucalyptus
Australian Journal of Optometry, 2:1214
Australian Tea Trees of Economic Value (Penfold and Morrison), 4:2197
Authentic movement, 3:1524–1525
Autism, 1:*188,* **188–191**
craniosacral therapy for, 1:190, 627
gluten-free diet for, 2:942
inositol for, 2:1192
magnesium for, 3:1406
MMR vaccine and, 1:191; 3:1447, 1547
music therapy for, 3:1552
pyridoxine for, 1:190; 3:1857; 4:2338
Autistic savants, 1:189
Auto-urine therapy. *See* Urine therapy
Autodigestion, pancreatitis and, 3:1693
Autogenic training
eczema, 2:743
headaches, 2:1004
migraine, 3:1500
Autoimmune arthritis. *See* Ankylosing spondylitis
Autoimmune disorders
chymotrypsin for, 1:539
colostrum for, 1:583–584
fish oil for, 2:841–842
ganoderma for, 2:887
gluten-free diet for, 2:942
juvenile rheumatoid arthritis as, 2:1251
MSM for, 3:1530
pregnancy and, 3:1925–1926
probiotics for, 3:1820

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Autoimmune disorders *(continued)*
rashes and, 3:1880
Sjögren's syndrome and, 4:2071
veganism for, 4:2320
See also specific disorders
Autoimmune hemolytic anemia, 1:84
Autoimmune thyroiditis. *See* Hashimoto's thyroiditis
Autointoxication theory, 3:1818–1819
See also Dysbiosis; Leaky gut syndrome
Autologous blood donation, 1:39
Autologous bone marrow transplantation, 3:1420
Autologous cell therapy, 1:435
Autonomic nervous system (ANS)
anxiety, 1:114
biofeedback, 1:242–243
guided imagery, 2:972
therapeutic touch, 4:2222
Autumn crocus. *See* Colchicum
Avalokitesvara. *See* Quan yin
Avastin (bevacizumab), 1:326, 581
Aveeno
eczema, 2:742
itching, 2:1229
psoriasis, 3:1837
Avena sativa. *See* Wild oat
Avicenna, 1:138; 4:2287, 2288
Avidin, biotin and, 1:254
Avodart (dutasteride), for prostate enlargement, 3:1832
Avolition, schizophrenia and, 4:1994
Avonex, for multiple sclerosis, 3:1543
AVS (American Vegan Society), 4:2319
Avulsions, 4:2397, 2398
See also Wounds
Awareness, sensory. *See* Sensory awareness
Awareness through movement, Feldenkrais method, 2:820
AYA (American Yoga Association), 1:237
Ayres, A. Jean, 4:2024, 2025
Ayurvedic Institute, 3:1691
Ayurvedic Medical Center, 3:1413
Ayurvedic medicine, 1:**191–196,** *192*
aging, 1:30
ashwaganda in, 1:150–153
asthma, 1:156
atherosclerosis, 1:166
biological cancer treatment and, 1:396
bites and stings, 1:261
bitter melon in, 1:264
boswellia in, 1:314–315
botanical medicine and, 1:317
bronchitis, 1:340
cancer, 1:388, 389
cayenne in, 1:427
chakra balancing and, 1:452–453
chills, 1:496
chronic fatigue syndrome, 1:532, 533
coleus in, 1:565, 566
color therapy and, 1:576, 577, 578
common cold, 1:591
corns and calluses, 1:610
cuts and scratches, 1:647–648
dandruff, 2:661
detoxification and, 2:676–677, 678
doshas, 1:*192*, 192–193, 193*t*
edema, 2:746
fasting, 2:812
fatigue, 2:817
gotu kola in, 2:952
guggul in, 2:970
gum diseases, 2:978
gymnema in, 2:980
hangovers, 2:988
headaches, 2:1004
hearing loss, 2:1009
heartburn, 2:1023
heavy metal poisoning, 2:1027
as holistic medicine, 2:1081
hypercortisolemia, 2:1125
hyperopia, 2:1127
infertility, 2:1180, 1181
ingrown nails, 2:1191
ischemia, 2:1225
jaundice, 2:1236
juice therapy and, 2:1246
laryngitis, 3:1308
mangosteen in, 3:1425
Ménière's disease, 3:1466
neem in, 3:1588, 1589, 1590
ovarian cancer, 3:1670
ovarian cysts, 3:1676
parasitic infections, 3:1704, 1705
Parkinson's disease, 3:1708
peptic ulcers, 4:2286
polarity therapy and, 3:1774
pranic healing and, 3:1791–1792
premenstrual syndrome, 3:1805
psoralea seeds in, 3:1834
psyllium in, 3:1849, 1850
pulse diagnosis in, 3:1855
rashes, 3:1882
retinopathy, 3:1919
rubella, 3:1956
sciatica, 4:2002
sesame oil in, 4:2030
sexual dysfunction, 4:2032
shingles, 4:2053
sleep disorders, 4:2085
sore throat, 4:2106
stomachaches, 4:2144
strep throat, 4:2148
tremors, 4:2263
triphala in, 4:2271–2272
turmeric in, 1:641–643; 4:2280
vegetarianism and, 4:2326
vomiting, 4:2358–2359
wheezing, 4:2372, 2373
worms, 4:2393
See also Panchakarma
Azadirachta indica. *See* Neem
Azathioprine, for juvenile rheumatoid arthritis, 2:1253
Azelaic acid, for rosacea, 3:1946
Azelastine, for hay fever, 2:999
Azidothymidine (AZT), cat's claw and, 1:422
Azithromycin, 1:514; 4:2185
Azob. *See* Hyssop
Azole medications, for fungal infections, 2:877
AZT (azidothymidine), cat's claw and, 1:422
Azulene, in chamomile, 1:455
Azulfidine. *See* Sulfasalazine

B

B complex vitamins. *See* Vitamin B complex
B lymphocytes
leukemia, 3:1331, 1332
overview, 3:1418–1419
B vitamins. *See specific vitamins*
Ba gua, 2:821–823, *822*
Babachi. *See* Psoralea seeds
BAC (blood alcohol concentration), 1:40*t*; 2:987
Bach, Edward
flower remedies, 1:197, 199, 317; 2:849, 852
Rescue Remedy, 3:1908
wild oat flower remedy, 4:2385
Bach Centre, 2:853; 3:1908, 1910
Bach flower essences, 1:**197–200,** *198*
See also Flower remedies
Bach International Education Program, 2:853
Bach Rescue Sleep remedy, 4:2085
Bachelor's buttons. *See* Feverfew
Bacille Calmette-Guérin, 1:281; 4:2277
Bacitracin, for conjunctivitis, 1:595
Back of knee light therapy, 3:1344*t*, 1345
Back pain
chiropractic for, 1:507, 508
enzyme therapy for, 2:768
herniated disk and, 2:1054–1055, 1057
massage therapy for, 3:1442
mercurius vivus for, 3:1484
myotherapy for, 3:1558
neural therapy for, 3:1594
nux vomica for, 3:1616
polarity therapy for, 3:1774
pregnancy massage for, 3:1802
prolotherapy for, 3:1823
pulsatilla for, 3:1853
reflexology for, 3:1897, 1898

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

rhus toxicodendron for, 3:1936, 1937
Rolfing for, 3:1941
Rosen method for, 3:1953
shiatsu for, 4:2046
spinal manipulative therapy for, 4:2121
sulfur for, 4:2163
therapeutic touch for, 4:2224
trigger point therapy for, 4:2270
tui na massage for, 4:2257
white willow for, 4:2376
witch hazel for, 4:2389
yoga for, 4:2409
See also Low back pain
Baclofen, 3:1543, 1597
Bacon, Francis, 2:761
Bacopa monnieri. See Gotu kola
Bacterial bladder infections, 1:283
Bacterial conjunctivitis, 1:594, 595
Bacterial food poisoning, 2:858–860
See also Food poisoning
Bacterial gastroenteritis, 2:907
See also Gastroenteritis
Bacterial infections
with AIDS, 1:34
cnidium seeds for, 1:551
colostrum for, 1:583
digestive system and, 3:1305
garlic for, 2:895
grapefruit seed extract for, 2:965
horsetail for, 2:1106
mercurius vivus for, 3:1484
mullein for, 3:1536
neem for, 3:1588
oregano for, 3:1639, 1640
psoralea seeds for, 3:1834
scallion for, 4:1984
sick building syndrome and, 4:2058
sinus infections and, 4:2068
sore throat and, 3:1515
spearmint for, 4:2119
theanine for, 4:2221
See also Antibacterial agents; Antibiotics; Secondary bacterial infections
Bacterial meningitis, 3:1470, 1471, 1472
Bacterial pneumonia, 3:1770, 1772, 1773
Bacterial vaginosis
overview, 4:2307, 2308, 2309
pelvic inflammatory disease and, 3:1723
probiotics for, 3:1820
treatment, 4:2310
Bactericides. *See* Antibacterial agents
Bactroban. *See* Mupirocin
Bad breath. *See* Halitosis
Bad-kan (Tibetan medicine), 4:2240
Badianus, Juan, 1:316
Bag Balm, for impetigo, 2:1163
Bai gou. *See* Ginkgo biloba
Bai Hua She She Cao, in Sun's soup, 4:2170
Bai Jin Wan, for depression, 2:670
Bai Mao Gen
andrographis with, 1:77
for vomiting, 4:2358
for whooping cough, 4:2380
Bai shao. *See* White peony root
Bai thu. *See* Atractylodes
Bai tou weng. *See* Pulsatilla
Bai zhu/Bai shu. *See* Atractylodes
Bai zi ren. *See* Biota
Baical skullcap root. *See* Chinese skullcap
Baikal. *See* Chinese skullcap
Baime, Michael J., 3:1449
Baking soda. *See* Bicarbonate of soda
Bakuchi. *See* Psoralea seeds
BAL. *See* Dimercaprol chelation therapy
Balch, Phyllis A., 1:268
Balder's eyelashes. *See* Chamomile
Balding. *See* Hair loss
Balloon angioplasty
angina, 1:92
atherosclerosis, 1:167
heart attacks, 2:1013
heart disease, 2:1018
ischemia, 2:1226
Balloon tamponade ligation, 1:548
Balm of Gilead, 1:**200–201**
Balmony, for fatigue, 2:816
Balneology. *See* Hydrotherapy
Balsam pear. *See* Bitter melon
Balsam poplar tree. *See* Balm of Gilead
Baltimore Academy of Behavioral Optometry, 1:217
Bamboo spine, 1:95
Ban Lan Gen Chong Ji, 1:478, 591
Ban xia. *See* Pinellia
Ban zhi lian. *See* Chinese skullcap
Banana skin, for warts, 4:2363
Bandler, Richard, 3:1598
Bando Pilgrimage, 3:1864
Banxia Houpu, for depression, 3:1758
Bao He Wan, for vomiting, 4:2358
Baptisia tinctoria. See Wild indigo
Barachi. *See* Psoralea seeds
Barbat skullcap. *See* Chinese skullcap
Barberry, 1:*201*, **201–203**
dysbiosis, 2:723–724
hangovers, 2:988
in Hoxsey formula, 2:1114
irritable bowel syndrome, 2:1220
parasitic infections, 3:1705
psoriasis, 3:1837
UTIs, 1:285
yeast infections, 4:2404
Barbita (phenobarbitol), 2:778, 1065
Barbiturates
abuse of, 4:2160
for anxiety, 1:116
for epilepsy, 2:778
for Ménière's disease, 3:1467
Bardana. *See* Burdock root
Barium enemas. *See* Lower GI x-ray series
Barium swallows. *See* Upper GI x-ray series
Barley grass, 1:**203–205,** *204*
Barney de Cruz, Margarita, 3:1811
Barosma betulina. See Buchu
Barrenwort. *See* Epimedium
Barrett's esophagus, 2:1021, 1023, 1025
Barrie, Stephen, 2:723
Barrier contraception methods
chlamydia prevention, 1:515
overview, 1:486
pelvic inflammatory disease and, 3:1725
Bartenieff, Irmgard, 3:1524
Bartenieff fundamentals, 3:1524
Barton, Benjamin Smith, 2:948
Basal cell carcinomas
escharotic treatment for, 2:782
green tea for, 2:968
overview, 4:2072, 2073
See also Skin cancer
Base oils. *See* Carrier oils and lotions
Base/root chakra, 1:453
Basil
holistic dentistry and, 2:1077
knee pain, 2:1282
sleep disorders, 4:2085
whooping cough, 4:2380
Bastard ginseng. *See* Codonopsis root
Bastard saffron. *See* Safflower flower
Bastyr University of Natural Health Sciences
homeopathy, 2:1088, 1092, 1096
naturopathic medicine, 3:1581
panchakarma, 3:1691
yohimbe, 4:2415
Bates, William Horatio, 1:205–206, 207, 216
Bates Association for Vision Education, 1:208
Bates method, 1:**205–208**
astigmatism, 1:160
hyperopia, 2:1127
myopia, 3:1556
Bathing. *See* Hydrotherapy; Therapeutic baths
Battle Creek Food Company, 4:2325
Battle fatigue. *See* Post-traumatic stress disorder
Battle's sign, 1:342
Bavachi. *See* Psoralea seeds

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Bawchi. *See* Psoralea seeds
Bay laurel
aromatherapy uses, 1:137*t*
stomachaches, 4:2144, 2145
wheezing, 4:2373
Bayberry, 1:**208–209**
common cold, 1:591
sore throat, 4:2106
strep throat, 4:2148
worms, 4:2393
Baylor College of Medicine, 2:696; 3:1408
Baylor University, 2:968; 3:1679
Baywillow. *See* White willow
BCG (Bacille Calmette-Guérin), 1:281; 4:2277
Be wei di huang wan, for dementia, 2:666
Beano, for gas, 2:704, 899
Bearberry. *See* Uva ursi
Beard, George Miller, 3:1538
Beard, John, 2:1266
Beard moss. *See* Usnea
Bear's weed. *See* Yerba santa
Beauticians, facial massage and, 2:809, 811
Beaver tree. *See* Magnolia
Becker, Robert O., 1:15
Bed adjustments, for snoring, 4:2098
Bedsores, 1:**210–212**
manuka honey for, 3:1428
slippery elm for, 4:2088
witch hazel for, 4:2389
Bedwetting, 1:**212–214**
cornsilk for, 1:213, 611, 612
ferrum phosphoricum for, 2:828
Kampo medicine for, 2:1257
lycopodium for, 3:1380
mistletoe for, 3:1510
psoralea seeds for, 3:1834
sepia for, 4:2028
St. John's wort for, 4:2131
uva ursi for, 4:2305
Bee balm, for laryngitis, 3:1309
Bee bread. *See* Red clover
Bee Online, 1:214
Bee pollen, 1:**214–216;** 2:999
Bee sting therapy. *See* Apitherapy
Bee stings. *See* Bites and stings
Bee venom. *See* Apis
Bee venom therapy (BVT). *See* Apitherapy
Beebread. *See* Borage oil
Beech
as flower remedy, 1:199; 2:850*t*, 851
for rashes, 3:1881
Beer industry. *See* Breweries
Bee's milk. *See* Royal jelly
Beggar's blanket. *See* Mullein
Beggar's buttons. *See* Burdock root
Beggarweed. *See* Cuscuta
Behavior modification. *See* Behavioral therapy
Behavioral anxiety, 1:113
See also Anxiety
Behavioral medicine. *See* Mind/body medicine
Behavioral optometry, 1:**216–217**
Behavioral therapy, 1:**217–221**
ADHD, 1:176
autism, 1:190
bedwetting, 1:213
history, 3:1845, 1846*t*, 1848
irritable bowel syndrome, 2:1221
obesity, 3:1624
post-traumatic stress disorder, 3:1786
sexual dysfunction, 4:2033
smoking cessation, 4:2093
stress, 4:2152
Tourette syndrome, 4:2249
trichotillomania, 2:984
urinary incontinence, 4:2293
vomiting, 4:2359
Behçet's disease, colchicum for, 1:560
Belladonna, 1:*221*, **221–224**
boils, 1:303
bursitis, 1:364
chickenpox, 1:478
conjunctivitis, 1:594
ear infections, 2:733
earaches, 2:737
endometriosis, 2:760
fever, 4:1987
headaches, 2:1004
in homeopathy, 2:1083*t*
irritable bowel syndrome, 2:1220
knee pain, 2:1283
measles, 3:1447
mumps, 3:1546
pelvic inflammatory disease, 3:1724
rubella, 3:1956
sore throat, 4:2106
strep throat, 4:2148
tonsillitis, 4:2245
whooping cough, 4:2380
Bellanti, Joseph A., 1:121
Bellergal, for hot flashes, 2:1111
Bellis perennis, for low back pain, 3:1365
Bell's palsy
apitherapy for, 4:2331
homeopathy for, 2:1089
mononucleosis and, 3:1514
Belly breathing, defined, 1:332
See also Breath therapy
Belshaw, Chris, 3:1660
Beltsville Agricultural Research Center, 3:1637
Bemchi. *See* Psoralea seeds
Benadryl, for motion sickness, 3:1521
Bencao Gangmu (Shiz-hen)
aromatherapy, 1:137
botanical medicine, 1:316
history, 3:1856
licorice, 3:1342
marijuana, 3:1430
red yeast rice extract, 3:1892
Benign late syphilis, 4:2181
See also Syphilis
Benign prostatic hypertrophy (BPH). *See* Prostate enlargement
Benign tumors, defined, 1:385
See also Tumors
Benincasa hispida, 1:77
Benne. *See* Sesame oil
Benor, Daniel, 2:762, 763
Benson, Herbert
meditative prayer, 3:1794; 4:2412
mind/body medicine, 3:1506, 1906
relaxation response, 1:331; 3:1450, 1904, 1905
Benson-Henry Institute for Mind Body Medicine, 1:331
Bentonite clay
abscesses, 1:2
dermatitis, 2:674
fungal infections, 2:877
Benzaseride, for Parkinson's disease, 3:1709
Benzodiazepines
abuse of, 4:2158, 2160
anxiety, 1:116
bipolar disorder, 1:258
headaches, 2:1005
insomnia, 2:1196
panic disorders, 3:1699
phobias, 3:1744
post-traumatic stress disorder, 3:1786
sleep disorders, 4:2086
Benzoin
bronchitis, 1:340
cuts and scratches, 1:648
juvenile rheumatoid arthritis, 2:1253
laryngitis, 3:1308
rheumatic fever, 3:1922
Benzoyl peroxide, for acne, 1:8
Ber, Abram, 3:1827
Berard, Guy, 1:179, 180, 181; 4:2107
Berberine compounds
in barberry, 1:202, 203
in coptis, 1:607
for dysbiosis, 2:723–724
for parasitic infections, 3:1705
tetracycline antibiotics and, 1:267
Berberis species. *See* Barberry
Bergamot
boils, 1:303
cuts and scratches, 1:648
eczema, 2:743
holistic dentistry and, 2:1077
infections, 2:1176
menstruation disorders, 3:1483

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

mononucleosis, 3:1515
premenstrual syndrome, 3:1806
sleep disorders, 4:2085
staphylococcal infections, 4:2136
vomiting, 4:2358
Berger's disease, omega-3 fatty acids for, 3:1632
Beriberi, 4:2229
Bernard training. *See* Auditory integration training
Berne, Eric, 3:1848
Berries
gout, 2:957
hemorrhoids, 2:1034
night blindness, 3:1603
phlebitis, 3:1740
retinopathy, 3:1919
rheumatoid arthritis, 3:1926
varicose veins, 4:2317
Bertoni, Moises Santiago, 4:2138
Beta-blockers
angina, 1:91
anxiety, 1:116
chronic fatigue syndrome, 1:534
glaucoma, 2:934
headaches, 2:1005
heart disease, 2:1018
hypertension, 2:1134
ischemia, 2:1226
migraine, 3:1500
phobias, 3:1744
strokes, 4:2157
Beta brain wave neurofeedback, 1:243
Beta carotene, 1:**226–230,** 226*t*
aging, 1:30
AIDS, 1:36
as antioxidant, 1:109*t*, 110, 111
asthma, 1:156
cataracts, 1:416, 417
conjunctivitis, 1:594
dementia, 2:665
dry mouth, 2:721
earaches, 2:737
food sources, 1:109*t*, 403*t*
gastritis, 2:902
genital herpes, 2:911
genital warts, 2:914
in golden rice, 4:2334
gum diseases, 2:977
infections, 2:1176
infertility, 2:1180
influenza, 2:1188
laryngitis, 3:1309
leukemia, 3:1333
lung cancer and, 3:1370–1371
pneumonia, 3:1772
seniors, 4:2017
skin cancer, 4:2074
smoking and, 4:2093, 2334
sore throat, 4:2106
in spirulina, 4:2122–2123
sties, 4:2141
systemic lupus erythematosus, 4:2188
tonsillitis, 4:2245
tuberculosis, 4:2276
uterine cancer, 4:2299
vitamin A and, 1:404
whooping cough, 4:2380
Beta Carotene and Retinol Efficacy Study (CARET), 4:2093, 2334
Beta-cryptoxanthin, 1:403*t*, 405
Beta glucan, in maitake, 3:1412
Beta hydroxy acids (BHAs), 1:**231–233**
Beta-inteferon, for multiple sclerosis, 3:1543
Beta-methylbutyric acid (HMB), 1:**224–226**
Beta-receptor agonists. *See* Bronchodilators
Beta-thalassemia, 1:84
Betadine, 4:2268, 2309
Betaine hydrochloride, 1:**233–235,** 547
Betaseron, for multiple sclerosis, 3:1543
Betasitosterol, 1:24; 2:682
Better Nutrition (journal), 1:74, 215, 369; 4:1979
Bevacizumab, 1:326, 581
BHA/BHT preservatives, 2:702*t*
Bhacca, Jivaka Kumar, 4:2217–2218
Bhagavad-Purana, 1:235
Bhakti yoga, 1:**235–237;** 4:2412
BHAs (beta hydroxy acids), 1:231–233
Bhringaraj, for sleep disorders, 4:2085
BHRT (bioidentical hormone replacement therapy), 1:248–251
Bi-est hormone replacement therapy, 1:249
Bi Yan Pian, 1:55; 3:1929
Bibhitaki fruit, in triphala, 4:2271
Biblical references
balm of Gilead, 1:200
thuja, 4:2231
urine therapy, 4:2294
Bicarbonate of soda
bites and stings, 1:261
body odor, 1:301
gum diseases, 2:978
halitosis, 2:986
heartburn, 2:1024
itching, 2:1229
prickly heat, 3:1809
stomachaches, 4:2144
uva ursi, 4:2305
vaginitis, 4:2309
vomiting, 4:2359
Bichloroacetic acid, for genital warts, 2:914
Biegeleisen, H. I., 3:1823
Bifidobacterium bifidus. See Lactobacillus bifidus
Big Apple Circus Clown Care Unit, 2:1117
Big tobacco. *See* Mullein
Biguanides, for insulin resistance, 2:1200
Bikram yoga, 2:993
Bilateral vasectomy, 2:775
Bilberry, 1:**237–239,** *238*
blood clots, 1:292
cataracts, 1:238, 239, 417
diabetes, 2:689
glaucoma, 2:933
hyperopia, 2:1127
ischemia, 2:1225
night blindness, 3:1603
peptic ulcers, 4:2285
pregnancy, 3:1799
retinopathy, 3:1919
rubella, 3:1956
skin cancer, 4:2074
smoking cessation, 4:2090*t*, 2093
Bile
artichoke and, 1:150
gallstones and, 2:879
as humor in unani-tibbi, 4:2289
jaundice and, 2:1232
Bile acids, for gallstones, 2:881
Bilevel positive airway pressure (BiPAP), for sleep apnea, 4:2081
Biliary cirrhosis, 1:545
See also Cirrhosis
Biliary colic, belladonna for, 1:222
Bilirubin, jaundice and, 2:1232, 1233, 1234
Bilis, curanderismo and, 1:640
Bing Lang, for worms, 4:2393
Binge eating disorder, 1:**240–242**
Binge-eating/purging anorexia nervosa, 1:98
Binge-purge behavior. *See* Bulimia nervosa
Binges, defined, 1:98–99
Bio-Medical Center, 2:1114
Bio-oxidative therapy. *See* Oxygen/ozone therapy
Bioaccumulation
disease, 2:677
mercury poisoning, 3:1487
vegetarianism, 4:2329
Biocytin. *See* Brewer's yeast
Biofeedback, 1:**242–245**
asthma, 1:156
behavioral therapy and, 1:219
bipolar disorder, 1:257
bruxism, 1:344
bulimia nervosa, 1:353
chronic fatigue syndrome, 1:533
colitis, 1:571
diabetes, 2:689
EEG and, 1:176, 243
epilepsy, 2:777
gangrene, 2:886

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Biofeedback *(continued)*
glaucoma, 2:934
headaches, 2:1004
hot flashes, 2:1112
hypercortisolemia, 2:1125
inflammatory bowel disease, 2:1185
irritable bowel syndrome, 2:1220, 1221
ischemia, 2:1225
Kegel exercises and, 2:1263–1264, 1265
low back pain, 3:1366
Ménière's disease, 3:1467
menopause, 3:1476
menstruation disorders, 3:1483
migraine, 3:1501
as mind/body medicine, 3:1507
mononucleosis, 3:1515
nausea, 3:1582
neuralgia, 3:1597
ovarian cancer, 3:1670
pain, 3:1686
peptic ulcers, 4:2286
premenstrual syndrome, 3:1807
Raynaud's syndrome, 3:1887
as relaxation therapy, 3:1906
sciatica, 4:2002
sensory integration disorder, 4:2026
sick building syndrome, 4:2059
sleep disorders, 4:2085
stress, 4:2152
strokes, 4:2156
substance abuse, 4:2161
temporomandibular joint syndrome, 4:2207
Tourette syndrome, 4:2249
trichotillomania, 2:984
urinary incontinence, 4:2292

Biofeedback Certification Institute of America, 1:245; 3:1508

Biofield therapy, 1:181

Bioflavonoids, 1:**245–247**
as antioxidant, 1:111, 112; 2:1058
in bilberry, 1:238
bursitis, 1:364
cerebral palsy, 1:443
in chasteberry, 1:459
cold sores, 1:563
dermatitis, 2:674
earaches, 2:737
endometriosis, 2:759
glaucoma, 2:933
gout, 2:957
in grape skin, 2:963–964
in grapefruit seed extract, 2:966
in green tea, 2:968
gum diseases, 2:977–978
hay fever, 2:998
hearing loss, 2:1009
hemorrhoids, 2:1034
in horsetail, 2:1106
hyperopia, 2:1127
infections, 2:1176
juvenile rheumatoid arthritis, 2:1253
leukemia, 3:1334
lung cancer, 3:1371
Lyme disease, 3:1386
measles, 3:1447
menopause, 3:1581
myopia, 3:1555
pain, 3:1685
Parkinson's disease, 3:1708
in pine bark extract, 3:1755–1756
pneumonia, 3:1772
quercetin as, 3:1865, 1866
retinopathy, 3:1919
rhinitis, 3:1928
in safflower, 4:1966
shingles, 4:2053
skin cancer, 4:2074
smoking cessation, 4:2093
sore throat, 4:2106
sprains and strains, 4:2128
systemic lupus erythematosus, 4:2188
tonsillitis, 4:2245
uterine fibroids, 4:2302

Bioidentical hormone replacement therapy (BHRT), 1:248–251; 2:1110

Biological and Pharmaceutical Bulletin, 1:551

Biological cancer treatment, 1:**394–398**
See also Cancer treatment

Biological dentistry. *See* Holistic dentistry

Biological Psychology (journal), 4:2220

Biological therapy. *See* Immunotherapy

Biopsy
breast cancer, 1:324; 2:837
cancer, 1:388, 391
celiac disease, 1:431
cervical dysplasia, 1:450
cirrhosis, 1:547
Hodgkin's disease, 2:1074
leukemia, 3:1333
lung cancer, 3:1370
lymphomas, 3:1420
ovarian cysts, 3:1675
pleurisy, 3:1767
prostate cancer, 3:1826
prostate enlargement, 3:1831
skin cancer, 4:2074

Biosensors
spirulina as, 4:2124
usnea as, 4:2297

Biota, 1:**251–252**

Bioterrorism
infections, 2:1175
influenza, 2:1186

Biotherapeutic drainage, 1:**252**

Biotherapeutics. *See* Immunotherapy

Biotin, 1:**253–255,** 253*t*
cradle cap, 1:620
dermatitis, 2:674
hair loss, 2:984
peripheral neuropathy, 3:1734

Biotin deficiency, 1:253, 254

BiPAP (bilevel positive airway pressure), for sleep apnea, 4:2081

Biphosphonates, for osteoporosis, 3:1666

Bipolar disorder, 1:**255–259**
fish oil for, 2:842
light therapy for, 3:1344
magnetic therapy for, 1:258; 3:1409
omega-3 fatty acids for, 3:1632

Bipolar disorder, not otherwise specified (NOS), 1:255–256

Bipolar I disorder, 1:255

Bipolar II disorder, 1:255

Birch
low back pain, 3:1365
UTIs, 1:285

Bird, Shabari, 3:1566

Bird lime. *See* Mistletoe

Bird-of-paradise, for itching, 2:1229

Bird seed (plant). *See* Plantain

Birth. *See* Childbirth

Birth control. *See* Contraception

Birth control pills. *See* Oral contraceptives

Birth defects
craniosacral therapy for, 1:627, 628
hypothyroidism and, 2:1149
neural tube defects, 2:856
rubella and, 3:1955, 1956
screening tests, 3:1798
temporomandibular joint syndrome and, 4:2206, 2208

Biscuit root. *See* Lomatium

Bishop's weed. *See* Khella

Bismuth subsalicylate
cold sores, 1:563
gastroenteritis, 2:908
peptic ulcers, 4:2286
stomachaches, 4:2144
vomiting, 4:2358

Bisquaternary quinolinium salts, for trichomoniasis, 4:2268

Bite problems, holistic dentistry and, 2:1078

Bites and stings, 1:**259–263**
activated charcoal for, 1:457
allergies, 1:53, 54
in apitherapy, 1:121
chickweed for, 1:480
coltsfoot for, 1:586
dandelion for, 2:659
feverfew for, 1:536, 537; 2:833
French green clay for, 2:867
gardenia for, 2:894
grapefruit seed extract for, 2:966
green tea for, 2:968–969
gymnema for, 2:980

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

homeopathy for, 2:1090
horehound for, 2:1102
hyssop for, 2:1152
itching from, 2:1229
lavender for, 3:1311
ledum for, 3:1324
lemon balm for, 3:1327
lobelia for, 3:1355
marsh mallow for, 3:1434
nettle for, 3:1592
noni for, 3:1605
oregano for, 3:1639
parsley for, 3:1712
plantain for, 3:1764
prickly pear cactus for, 3:1811
psoralea seeds for, 3:1834
quercetin for, 3:1866
rabies and, 3:1869
red clover for, 3:1891
ruta for, 3:1961
sage for, 4:1970
tea tree oil for, 4:2198
urine therapy for, 4:2295
wild oat for, 4:2385
witch hazel for, 4:2388, 2389
yellow dock for, 4:2406
yerba santa for, 4:2408

Bitter-bush. *See* Eupatorium

Bitter cola. *See* Kola nut

Bitter cucumber. *See* Colocynthis

Bitter melon, 1:*263*, **263–265**
diabetes, 2:689
insulin resistance, 2:1200
parasitic infections, 3:1705
polycystic ovarian syndrome, 3:1779
psoriasis, 3:1837

Bitter orange. *See* Neroli

Bitter root. *See* Gentiana

Bitter wintergreen. *See* Wintergreen

Bitterness
Ayurvedic medicine, 1:194–195, 265
of gentian, 2:916
traditional Chinese medicine, 1:265, 503; 2:1043

Bitters, 1:**265–268**
blessed thistle in, 1:289
for constipation, 1:599
for digestion, 2:705
for dry mouth, 2:721
for insulin resistance, 2:1200
See also specific bitter herbs

Bitterwort. *See* Dandelion; Gentiana

Black atractylodes, 1:173, 174

Black cohosh, 1:**268–271**, *269*
amenorrhea, 1:72
dysmenorrhea, 2:729
emphysema, 2:754
endometriosis, 2:760
hay fever, 2:999
hot flashes, 2:1109
menopause, 3:1475
menstruation disorders, 3:1482, 1483
ovarian cancer, 3:1671
ovarian cysts, 3:1676
polycystic ovarian syndrome, 3:1779
premenstrual syndrome, 3:1805
uterine cancer, 4:2299

Black cumin seed extract, 1:**271–274**
herbal cold remedies, 2:1046, 1047
unani-tibbi, 4:2289

Black currant seed oil, 1:**274–275**
gamma-linolenic acid in, 2:882, 884
juvenile rheumatoid arthritis, 2:1253
menopause, 3:1475

Black dogwood. *See* Buckthorn

Black elder. *See* Elder flower

Black haw, 1:**275–277**, *276*; 3:1482, 1805

Black horehound, 2:1102
See also Horehound

Black lung. *See* Emphysema

Black mold, 4:*2057*

Black pepper, for smoking cessation, 4:2093

Black phosphorus, 3:1745
See also Phosphorus

Black salve products, 2:783

Black seed. *See* Black cumin seed extract

Black tang. *See* Bladderwrack; Kelp

Black tany. *See* Bladderwrack

Black tea, for coronary heart disease, 2:1012

Black walnut, 1:*277*, **277–280**, *278*
fungal infections, 2:877
rashes, 3:1881
vaginitis, 4:2309
worms, 4:2393

Black wort. *See* Comfrey

Blackheads, 1:6

Blackouts, alcoholic, 1:42

Bladder cancer, 1:**280–282**; 2:1160; 3:1306

Bladder dysfunction, urinary incontinence and, 4:2291, 2292

Bladder fucus. *See* Bladderwrack

Bladder infections, 1:**283–286**
arsenicum album for, 1:144
buchu for, 1:348
cantharis for, 1:400, 401
coleus for, 1:566
cornsilk for, 1:611, 612
gardenia for, 2:893
gentiana for, 2:916
homeopathy for, 2:1094
horsetail for, 2:1106
Iceland moss for, 2:1155
interstitial, 2:1201–1203
juniper for, 2:1249–1250
kava kava for, 2:1261
kelp for, 2:1269
kidney infections and, 2:1273, 1274
lycopodium for, 3:1380
mangosteen for, 3:1425
neural therapy for, 3:1594
tea tree oil for, 4:2198
usnea for, 4:2298
uva ursi for, 4:2305, 2306
wintergreen for, 4:2387

Bladder surgery, for urinary incontinence, 4:2293

Bladder training, 4:2292

Bladderwrack, 1:*286*, **286–287**; 2:1150
See also Kelp

Blastocystis hominis, oregano for, 3:1640

Bleeding
anemia and, 1:82
in auriculotherapy, 1:187
Chinese foxglove root for, 1:497
Chinese skullcap for, 4:2076
ferrum phosphoricum and, 2:828
gardenia for, 2:893
goldenrod for, 2:947
grains-of-paradise for, 2:959
horsetail for, 2:1106, 1107
ipecac for, 2:1207
lysimachia for, 3:1390
myrrh for, 3:1561
nettle for, 3:1592
in newborns, 4:2354, 2355
notoginseng for, 3:1608
peptic ulcers and, 4:2284
periwinkle for, 3:1736
shepherd's purse for, 4:2044
squawvine for, 4:2129
thuja for, 4:2231
uterine, 3:1480; 4:2301
white peony root for, 4:2374
witch hazel for, 4:2389
from wounds, 4:2399
yarrow for, 4:2402
yucca for, 4:2418

The Blending Book: Maximizing Nature's Nutrients (Wigmore), 4:2382

Blepharitis, eyebright for, 2:807

Blessed thistle, 1:*288*, **288–289**; 3:1805; 4:2299

Blind assessments, placebo effect and, 3:1761

Blindness
from glaucoma, 2:932
from macular degeneration, 3:1399
retinopathy and, 3:1917
Vitamin A deficiency and, 1:227

Blindweed. *See* Shepherd's purse

Blister beetle. *See* Cantharis

Blistering rashes, 3:1880
See also Rashes

Blisters, 1:*290*, **290–291**
arsenicum album for, 1:144
cantharis for, 1:400, 401

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Blisters *(continued)*
from cold sores, 1:562
from genital herpes, 2:911
grapefruit seed extract for, 2:966
from shingles, 4:2051, *2051*, 2052
Block, Keith, 1:389–390; 3:1671
Block Method (Zone diet), 4:2424
Blood
alcohol effect on, 1:42
as humor in unani-tibbi, 4:2289
Blood, Stephen, 1:628
Blood alcohol concentration (BAC), 1:40*t*; 2:987
Blood-brain barrier, 3:1470
Blood carbon dioxide, sleep apnea and, 4:2079
Blood cholesterol. *See* Cholesterol; Hypercholesterolemia
Blood circulation
butcher's broom for, 1:366
cellulite and, 1:438
Chinese foxglove root for, 1:497
dong quai for, 2:718
essential oils for, 2:788
gangrene and, 2:885
geriatric massage for, 2:917
ginger for, 2:921, 922
ginkgo for, 2:922
hawthorn and, 2:995
horse chestnut for, 2:1105
lemongrass for, 3:1329
lycium fruit for, 3:1376
magnetic therapy for, 3:1408
massage therapy for, 3:1439
moxibustion for, 3:1528
MSM for, 3:1530
mugwort for, 3:1533
nettle for, 3:1591
ortho-bionomy for, 3:1649
peripheral neuropathy and, 3:1734
periwinkle for, 3:1736
pine bark extract for, 3:1756
red yeast rice extract for, 3:1893
rosemary for, 3:1950
Russian massage for, 3:1959
shiatsu for, 4:2046
Swedish massage for, 4:2172
Thai massage for, 4:2218
thyme for, 4:2237
Blood cleansers, for detoxification, 2:676*t*
Blood clots, 1:**291–294**
edema from, 2:745
ischemia and, 2:1223
motherwort for, 3:1519
sweet clover for, 4:2175
turmeric for, 1:641
wasabi for, 4:2366
white willow for, 4:2376
yucca for, 4:2418
Blood coagulation, 3:1739; 4:2353
Blood glucose
aloe and, 1:61, 62
bilberry and, 1:238
cinnamon and, 1:543
diabetes and, 2:685
guided imagery for, 2:972
gymnema and, 2:980, 981
hypoglycemia and, 2:1144–1145
Korean ginseng and, 2:928
lysimachia and, 3:1390
neem and, 3:1588
prickly pear cactus and, 3:1811–1812, 1813
psyllium and, 3:1850
South Beach diet and, 4:2112–2113
stevia and, 4:2138
Blood glucose tests
diabetes, 2:687
hypoglycemia, 2:1146
insulin resistance, 2:1199
Blood in urine. *See* Hematuria
Blood poisoning, 1:**294–296**; 2:938; 3:1435
Blood pressure
chronic fatigue syndrome and, 1:532
stevia and, 4:2138
See also Hypertension; Hypotension
Blood purification
arka, 1:132
burdock, 1:359
grains-of-paradise, 2:960
honeysuckle, 2:1097
horsetail, 2:1106
Blood tests
AIDS, 1:35
asthma/allergy connection, 1:155
cancer, 1:387–388
celiac disease, 1:430
detoxification and, 2:678
diabetes, 2:687
environmental therapy, 2:766
heart attacks, 2:1012
high sensitivity C-reactive protein test, 1:105; 2:1069–1071
holistic dentistry and, 2:1079
hypercortisolemia, 2:1125
hyperparathyroidism, 2:1129–1130
hyperthyroidism, 2:1138
hypothyroidism, 2:1149
indigestion, 2:1169
insulin resistance, 2:1199
jaundice, 2:1234
kidney infections, 2:1273
lead poisoning, 3:1318
leukemia, 3:1333
lipase levels, 3:1350
magnesium levels, 3:1404–1405
malaria, 3:1416
mercury poisoning, 3:1489
mononucleosis, 3:1514
natural hormone replacement therapy, 3:1574
neck pain, 3:1585
pancreatitis, 3:1694
parasitic infections, 3:1704
pelvic inflammatory disease, 3:1724
peptic ulcers, 4:2285
pregnancy, 3:1798
prostate cancer, 3:1826
Raynaud's syndrome, 3:1887
rheumatoid arthritis, 3:1926
scarlet fever, 4:1987
sickle cell anemia, 4:2064
syphilis, 4:2183
tinnitus, 4:2242
Blood thinners. *See* Anticoagulants
Blood transfusions
for anemia, 1:85
hemolysis and, 2:1234
hepatitis and, 2:1037
HIV transmission and, 1:33, 39
immuno-augmentation therapy and, 2:1159
for sickle cell anemia, 4:2065
Blood type, ulcers and, 4:2283
Blood vessels, 2:963; 3:1380
Bloodroot, 1:*296*, **296–298**
cervical dysplasia, 3:1580
escharotic treatment and, 2:783, 784
halitosis, 2:985
Bloodwort. *See* Yarrow
Blow ball. *See* Dandelion
Blue (color), 1:577, 578
Blue cataracts, 1:416
Blue cohosh, 1:**298–300**
amenorrhea, 1:72
childbirth, 1:270, 276
pelvic inflammatory disease, 3:1724
pregnancy, 3:1799
Blue ginseng. *See* Blue cohosh
Blue-green algae. *See Aphanizomenon flos-aquae;* Spirulina
Blue gum tree. *See* Eucalyptus
Blue pimpernel. *See* Skullcap
Blue sailors. *See* Chicory
Blue skullcap. *See* Skullcap
Blueberry, 2:978; 3:1603
See also Berries
Blumenthal, Morton, 1:425
BMC Psychiatry (journal), 1:20
BMI. *See* Body mass index
Bodhidharma, 3:1436
Bodhisattvas, 3:1862–1863, *1863*
Bodi. *See* Psoralea seeds
Body brushing, for sensory integration disorder, 4:2026
Body concept
anthroposophical medicine, 1:103
Ayurvedic medicine, 1:*192*, 192–193, 193*t*
traditional Chinese medicine, 1:17–18, 502; 2:1042; 4:2256
Body fat
aging and, 1:29
cellulite, 1:*437*, 437–440

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

linoleic acid and, 3:1348
obesity and, 3:1621*t*, 1623
Body lice, 3:1336, 1337, 1338
See also Lice infestations
Body mass index (BMI)
obesity, 1:490; 3:1621*t*; 4:2200
veganism, 4:2319
Body-mind centering, 3:1526
Body/mind medicine. *See* Mind/body medicine
Body odor, 1:**300–302,** 522; 3:1443
Body surface area (BSA), burns and, 1:361, 363
Body temperature
eczema, 2:742
fever, 2:830
thermography, 4:*2225,* 2225–2227
Bodybuilding. *See* Weight training
Bodywork
acupressure and, 1:13
Breema and, 1:334
bursitis, 1:364–365
cerebral palsy, 1:443
corns and calluses, 1:610
edema, 2:746
Gulf War syndrome, 2:975
heart attacks, 2:1012
heart disease, 2:1018
juvenile rheumatoid arthritis, 2:1253
low back pain, 3:1366
as movement therapy, 3:1525
peripheral neuropathy, 3:1734
pranic healing and, 3:1791–1792
pregnancy, 3:1800
psychophysiology and, 3:1842
rheumatoid arthritis, 3:1926
sciatica, 4:2002
See also specific types of bodywork
Bogulnik. *See* Ledum
Boils, 1:302–304, **302–304**
as abscesses, 1:1
arsenicum album for, 1:144
chickweed for, 1:480
comfrey for, 1:587
coptis for, 1:607
fenugreek for, 2:826
gotu kola for, 2:952
Hepar sulphuris for, 2:1036
hibiscus for, 2:1064
marsh mallow for, 3:1435
mercurius vivus for, 3:1484
mullein for, 3:1536
neem for, 3:1588
pulsatilla for, 3:1852
slippery elm for, 4:2088
staphylococcal infections and, 4:2136
tea tree oil for, 4:2198
thunder god vine for, 4:2234
turmeric for, 1:642
yellow dock for, 4:2406
Bond, Mary, 3:1525
Bone conduction hearing aids, 2:1009
Bone density and development
applied kinesiology and, 1:126
boron for, 1:312
calcium for, 1:305
ipriflavone for, 2:1210
lycopodium for, 3:1380
natural hormone replacement therapy and, 3:1574
osteoporosis and, 3:1662–1663
Bone density tests, 3:1664
Bone marrow biopsy, 3:1333, 1420
Bone marrow transplantation
glutamine for, 2:938
leukemia, 1:392; 3:1335
lymphomas, 3:1420
sickle cell anemia, 4:2065
Bone resorption, 3:1662, 1664
Bone spurs, 1:*308,* **308–309;** 2:1029
Bonemeal, 1:**304–306**
Boneset, 1:*306,* **306–308**
common cold, 1:591
fever, 2:832
influenza, 2:1188
overview, 2:797
pleurisy, 3:1768
See also Comfrey
Bonine (meclizine), 3:1521, 1583
Boniva (ibandronate), for osteoporosis, 3:1478, 1666
Bonnet bellflower. *See* Codonopsis root
Bonnie Prudden's Complete Guide to Pain-Free Living (Prudden), 3:1559
Bonny, Helen, 3:1552
The Book of Floating (Hutchinson), 4:2023
Boone, Daniel, 2:924
Booster vaccines
rabies, 3:1871
tetanus, 4:2216
whooping cough, 4:2380
Borage oil, 1:**309–312;** 3:*1347*
anxiety, 1:116
binge eating disorder, 1:241
chronic fatigue syndrome, 1:533
gamma-linolenic acid in, 2:882, 884
juvenile rheumatoid arthritis, 2:1253
panic disorders, 3:1698
phobias, 3:1743
stress, 4:2152
systemic lupus erythematosus, 4:2188
Borago officinalis. See Borage oil
Borderline personality disorder, essential fatty acids for, 2:786
Bordetella pertussis. See Whooping cough
Boric acid
conjunctivitis, 1:595
vaginitis, 4:2309, 2310
Boron, 1:*312,* **312–314**
juvenile rheumatoid arthritis, 2:1253
menopause and, 3:1476
as trace mineral, 1:462, 463
Borrelia burgdorferi, Lyme disease and, 3:1384–1386
Borrie, Roderick, 4:2022, 2023
Boston University, 2:936
Boswellia, 1:**314–315**
colitis, 1:570
emphysema, 2:754
in hydrotherapy, 2:1122
laryngitis, 3:1308
Botanic Gardens Conservation International, 1:560
Botanical medicine, 1:**315–321**
See also Herbal medicine
Botanical Medicine: A European Professional Perspective (Kenner and Requena), 1:279
Bottle-brush. *See* Horsetail
Bottle feeding
colic, 1:568–569
ear infections, 2:734
Botulinum toxins
headaches, 2:1005
migraine, 3:1500, 1501
prostate enlargement, 3:1832
tennis elbow, 4:2213
tremors, 4:2263
urinary incontinence, 4:2293
Botulism
causes, 2:860*t*
overview, 2:859
treatment, 2:861–862
Bouchard's nodes, 3:1654
Bouly, Alex, 3:1877
Bourrique. *See* Damiana
Bourse de pasteur. *See* Shepherd's purse
Bovine cartilage supplements, 1:410–411
Bovine colostrum. *See* Colostrum
Bovine thymus gland extract, for genital herpes, 2:911
Bowel incontinence, 2:695
Bowel resection, for colorectal cancer, 1:581
Bowel toxicity, 1:8, 574–575
Bowen, Murray, 3:1845
Bowers, Edwin, 3:1896
Bowman-Gray Medical School, 3:1475
Box holly. *See* Butcher's broom
Boxberry. *See* Wintergreen
Boxwood extract, for AIDS, 1:36

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

BPH (benign prostatic hypertrophy). *See* Prostate enlargement
Braces, orthopedic. *See* Orthopedic braces
Bracken, for itching, 2:1229
Brahmi
memory loss, 3:1463
sleep disorders, 4:2085
See also Gotu kola
Braid, James, 2:1141
Brain cancer, immuno-augmentation therapy and, 2:1160
Brain damage
cerebral palsy from, 1:440–441, 442
from lead poisoning, 3:1315–1316, 1317, 1318, 1319
memory loss and, 3:1461
from meningitis, 3:1469–1470, 1471
from mercury poisoning, 3:1489
Brain disorders, black walnut for, 1:279
Brain function
alcohol and, 1:41
Alzheimer's disease and, 1:65
autism and, 1:189
boron and, 1:312
copper and, 1:603
dementia and, 2:664–665
dyslexia and, 2:725–727
fasting and, 2:813
ginkgo for, 2:922
gotu kola for, 2:953
Gulf War syndrome and, 2:974
Korean ginseng for, 2:928
music therapy and, 3:1551
orthomolecular medicine and, 3:1651
periwinkle for, 3:1736
phobias and, 3:1742
plasticity and, 1:180–181
post-traumatic stress disorder and, 3:1784
schizophrenia and, 4:1993
sensory deprivation and, 4:2022, 2023
Tourette syndrome and, 4:2248
vomiting and, 4:2356
Brain surgery
epilepsy, 2:779
obsessive-compulsive disorder, 3:1629
Brain waves, biofeedback and, 1:243
Brainbloodvolume theory (trepanation), 4:2265, 2267
Brand, Hennig, 3:1745
Brandy, in Bach flower essences, 1:199
Brassica oleracea, for worms, 4:2393
BRAT diet, 2:697, 907
Braune. *See* Lysimachia
Brazil Department of Health, 4:2165
Brazilian ginseng. *See* Suma
Brazilian Journal of Medical and Biological Research, 1:5
Brazzach, Milton, 4:2165
BRCA1 and BRCA2 genes, 1:327
Breast cancer, 1:**322–327**
artemisinin for, 4:2395–2396
black cohosh for, 1:269, 270
copper for, 1:604
curcumin and, 1:643
DHEA and, 2:683
dong quai and, 2:719
exercise and, 2:804
fibrocystic breast disease and, 2:837, 838
flaxseed for, 2:847
glutathione for, 2:940
grape skin and, 2:964
high fiber diet for, 2:1067
Hodgkin's disease and, 2:1074–1075
hot flashes and, 2:1108
HRT and, 1:394; 3:1665
immuno-augmentation therapy and, 2:1160
low fat diet for, 3:1614
preventive surgery, 1:327, 391
Remifemin for, 3:1475
risk factors, 1:323
soy protein for, 4:2116
thermography for diagnosis, 4:2225–2227
veganism and, 4:2320, 2321–2322
vegetarianism and, 4:2328
Breast cysts. *See* Fibrocystic breast disease
Breast disease. *See* Fibrocystic breast disease
Breast-feeding
anise for, 1:94
blessed thistle for, 1:289
bugle weed and, 1:351
caffeine and, 1:374
chasteberry for, 1:460
comfrey and, 1:587, 588
ear infections and, 2:734
eczema and, 2:744
garlic for, 2:896
Iceland moss for, 2:1155
milk thistle for, 3:1502, 1503
oregano and, 3:1640–1641
overview, 1:327–328
parsley for, 3:1712
postpartum depression and, 3:1781
pulsatilla for, 3:1853
squawvine for, 4:2129, 2130
therapeutic touch for, 4:2223
See also Galactogogues
Breast-feeding problems, 1:**327–330**
Breast pumps, 1:329
Breast reconstruction, 1:325
Breath of fire, 1:331
Breath therapy, 1:*330*, **330–333**
asthma, 1:156–157
Buteyko method, 1:367–370
emphysema, 2:755
fatigue, 2:817
heart attacks, 2:1012
heartburn, 2:1024
hot flashes, 2:1112
insomnia, 2:1195
laryngitis, 3:1309
migraine, 3:1500
as mind/body medicine, 3:1507
ovarian cancer, 3:1670
ovarian cysts, 3:1676
panic disorders, 3:1698
pneumonia, 3:1772
post-traumatic stress disorder, 3:1785
pregnancy, 3:1800
qigong and, 3:1861, 1862
as relaxation therapy, 3:1905–1906
schizophrenia, 4:1999
Tourette syndrome, 4:2249
varicose veins, 4:2317
See also Pranayama
Breathing exercises. *See* Breath therapy
Breathing-related sleep disorders, 4:2083
See also specific disorders
Breathwork, 1:330–331
Breech fetal positions, moxibustion for, 3:1528, 1529, 1533–1534
Breema, 1:**333–335**; 3:1586
Breema Center, 1:333, 334–335
Brekhman, I. I., 2:930; 3:1931
Brett, Jennifer, 3:1640
Breweries, 1:208; 2:1100
Brewer's yeast, 1:**335–337**
Brigham and Women's Hospital, 1:110, 292
Bright's disease, uva ursi for, 4:2305
Bristol artificial disk, 2:1057
British Complementary Medicine Association, 3:1960
British Dietetic Association, 4:2115
British Herbal Compendium, 3:1435; 4:2376
British Journal of Anaethesia, 4:2047
British Journal of Clinical Pharmacology, 4:2227
British Journal of Psychiatry, 4:2132
British Journal of Rheumatology, 1:275
British Medical Association, 2:1141
British Medical Journal, 2:1088, 1091, 1096, 1214
British Natural Hygiene Society, 3:1575
British Pharmacopoeia (BP)
buchu, 1:347
enzyme activity standards, 1:539

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

eucalyptus, 2:792
garcinia, 2:890
peppermint, 3:1728
British Royal Society, 3:1874
British Society of Dowsers, 3:1877
British tobacco. *See* Coltsfoot
British wintergreen. *See* Wintergreen
Brittle diabetics, 2:686
Broad-leaved plantain. *See* Plantain
Bromelain, 1:**337–338**
bites and stings, 1:261
bursitis, 1:364
cervical dysplasia, 3:1580
cuts and scratches, 1:648
gout, 2:957
low back pain, 3:1365
Lyme disease, 3:1386
pain, 3:1684, 1685
phlebitis, 3:1740
rheumatoid arthritis, 3:1926
sprains and strains, 4:2128
uterine fibroids, 4:2302
Bromelin. *See* Bromelain
Bromhidrosis, 1:301
Brominated vegetable oil, 2:702*t*
Bronchial cancer, 1:*385*
Bronchitis, 1:**338–341**
American ginseng for, 2:924
anemarrhena for, 1:80
anise for, 1:94
apricot seed for, 1:129
arsenicum album for, 1:144
ashwaganda for, 1:152
black walnut for, 1:279
boswellia for, 1:314
chickweed for, 1:480
cinnamon for, 1:544
coltsfoot for, 1:585
comfrey for, 1:587
epimedium for, 2:781
eucalyptus for, 2:793, 794
eyebright for, 2:807
fritillaria for, 2:869
garlic for, 2:896
ginkgo for, 2:922
Gulf War syndrome and, 2:974
horehound for, 2:1102
horsetail for, 2:1107
Iceland moss for, 2:1155
juniper for, 2:1249
khella for, 2:1271
ledum for, 3:1325
lobelia for, 3:1354
lomatium for, 3:1356, 1357
lomilomi for, 3:1358
marijuana for, 3:1432
marsh mallow for, 3:1435
massage therapy for, 3:1440
mullein for, 3:1536
ophiopogon for, 3:1637
oregano for, 3:1639
osha for, 3:1652
pennyroyal for, 3:1726
peppermint for, 3:1730
phytolacca for, 3:1748
plantain for, 3:1764
pulsatilla for, 3:1852, 1853
red cedar for, 3:1889
red clover for, 3:1891
reishi mushroom for, 3:1903
slippery elm for, 4:2088
steam inhalation for, 2:1122
sulfur for, 4:2163
therapeutic touch for, 4:2224
thuja for, 4:2232
usnea for, 4:2298
wasabi for, 4:2366
yerba santa for, 4:2407, 2408
Bronchoconstriction, 1:154
Bronchodilators
allergies, 1:56
asthma, 1:155, 157, 158
bronchitis, 1:340, 341
emphysema, 2:756
ephedra in, 2:771
khella, 2:1271
kola nuts as, 2:1287
wheezing, 4:2372
Brow/forehead chakra, 1:453
Brown, J. Lynne, 2:693
Brown seaweed. *See* Bladderwrack; Kelp; Sargassum seaweed
Brown University, 2:1099
Bruises, 1:**341–343;** 4:2397, 2398
arnica for, 1:135
balm of Gilead for, 1:200
bugle weed for, 1:351
comfrey for, 1:587
compresses for, 2:1122
evening primrose oil for, 2:800
French green clay for, 2:867
grape skin for, 2:964
homeopathy for, 2:1090
jojoba oil for, 2:1242
ledum for, 3:1324, 1325
lobelia for, 3:1355
marsh mallow for, 3:1435
myrrh for, 3:1561
ox-eye daisy for, 1:536
parsley for, 3:1712
prickly pear cactus for, 3:1811
Rescue Remedy for, 3:1909
rosemary for, 3:1951
St. John's wort for, 4:2131
sweet clover for, 4:2175
tea tree oil for, 4:2198
triphala for, 4:2272
turmeric for, 1:642
witch hazel for, 4:2389, 2390
yerba santa for, 4:2408
Bruisewort. *See* Comfrey
Brunfels, Otto, 2:1049
Bruning, Nancy, 1:493; 4:2203
Bruxism, 1:242, 244, **343–345**
Bry (homeopathic remedy). *See* Bryonia
Bryonia, 1:*345*, **345–346**
bursitis, 1:364
colic, 1:568
cough, 1:619
fever, 4:1987
headaches, 2:1004
in homeopathy, 2:1083*t*
influenza, 2:1188
irritable bowel syndrome, 2:1220
Ménière's disease, 3:1466
mumps, 3:1546
rheumatoid arthritis, 3:1926
stomachaches, 4:2144
vomiting, 4:2358
wheezing, 4:2372
whooping cough, 4:2379
BSA (body surface area), burns and, 1:361, 363
BSD Medical Corporation, 2:1136
Bu gu zhi. *See* Psoralea seeds
Bu nao wan, 1:251
Bu Zhong Yi Qi Wan, for hay fever, 1:55
Buchu, 1:285, **347–348**
Buckeye. *See* Horse chestnut
Buckhorn. *See* Plantain
Buckthorn, 1:**348–350,** *349*
constipation, 1:599
in Hoxsey formula, 2:1114
irritable bowel syndrome, 2:1220
Budan, Hanna, 1:333
Buddhism
martial arts, 3:1436
quan yin, 3:1862–1865, *1863*
Thai massage, 4:2217–2218
Tibetan medicine, 4:2239
vegetarianism, 4:2324
Budesonide, for Crohn's disease, 1:633
Buffalo grass/herb. *See* Alfalfa
Bugle weed, 1:*350*, **350–352;** 3:1382–1384
Building-related illness, 4:2057–2058
Bukchi. *See* Psoralea seeds
Bulbar muscle weakness, 3:1361
Bulbus Fritillariae Cirrhosae. *See* Fritillaria
Bulghum (unani-tibbi), 4:2289
Bulimia nervosa, 1:**352–356;** 2:1206–1207
Bullae, 2:753, 756
Bullectomy, for emphysema, 2:756
Bull's blood. *See* Horehound
Bull's eyes. *See* Calendula
Bull's foot. *See* Coltsfoot
Bunionectomy, 1:358
Bunionettes, 1:356
Bunions, 1:**356–358;** 4:2198
Bupleurum. *See* Chinese thoroughwax
Bupropion, 2:671; 4:2094

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Burdock root, 1:**358–361**
acne, 1:7
constipation, 1:599
contact dermatitis, 1:602
cradle cap, 1:620
dermatitis, 2:674
eczema, 2:674
in essiac tea, 2:790, 791
hangovers, 2:988
heavy metal poisoning, 2:1027
in Hoxsey formula, 2:1114
impetigo, 2:1163
juvenile rheumatoid arthritis, 2:1253
ovarian cancer, 3:1671
ovarian cysts, 3:1676
pregnancy, 3:1799
premenstrual syndrome, 3:1805
psoriasis, 3:1837
rashes, 3:1881
retinopathy, 3:1919
substance abuse, 4:2161
Burdock seed
skin diseases, 1:359
urinary system, 1:282
Burgdorfer, Willy, 3:1384
Burkitt's lymphoma, 3:1515
Burns, 1:**361–363**
arsenicum album for, 1:144
cantharis for, 1:400, 401
chamomile for, 1:455
comfrey for, 1:587
coptis for, 1:607
fenugreek for, 2:826
flaxseed for, 2:846
French green clay for, 2:867
gardenia for, 2:894
glutamine and, 2:938
gotu kola for, 2:954
grapefruit seed extract for, 2:966
homeopathy for, 2:1090
honey for, 3:1427
hydrotherapy for, 2:1120
hypnotherapy for, 2:1141
hyssop for, 2:1152
jojoba oil for, 2:1242
lavender for, 3:1311
manuka honey for, 3:1428
marsh mallow for, 3:1435
milk thistle for, 3:1503
noni for, 3:1605
potassium for, 3:1787
Rescue Remedy for, 3:1909
rhubarb for, 3:1934
shepherd's purse for, 4:2044
slippery elm for, 4:2088
St. John's wort for, 4:2131, 2132
stevia for, 4:2138
tea tree oil for, 4:2198
traditional African medicine for, 4:2253
vitamin B12 for, 4:2336
wild oat for, 4:2385
witch hazel for, 4:2388, 2389
yellow dock for, 4:2406
Burr seed. *See* Burdock root
Burrage. *See* Borage oil
Bursae, 1:363
Bursitis, 1:**363–365**
apitherapy for, 4:2331
devil's claw for, 2:681
diathermy for, 2:699
glucosamine for, 2:936
knee pain and, 2:1281
mesoglycan for, 3:1490
rhus toxicodendron for, 3:1936
Russian massage for, 3:1959
tea tree oil for, 4:2198
vitamin B12 for, 4:2336
white willow for, 4:2376
yucca for, 4:2418
Burton, Lawrence, 2:1158–1159, 1161
Burzynski, Stanislaw, 1:390; 3:1671
Busch, Peter, 2:1136
Bush, George W., 1:434
Bushido, 3:1436
Bushman's hat. *See* Hoodia
Bushmaster snake venom. *See* Lachesis
Buspar (buspirone), for anxiety, 1:116
Buspirone, for anxiety, 1:116
Butcher's broom, 1:**365–367,** *366*
hemorrhoids, 2:1034
phlebitis, 3:1740
Buteyko, 1:**367–370**
Buteyko, Konstantin, 1:367
Buteyko Education and Training Centre, 1:367, 368
Buteyko International, 1:370
Butin abscesses, 1:1
Butter weed. *See* Prince's pine
Butterbur. *See* Coltsfoot
Butterflyweed, 2:999; 3:1767–1768
Butternut. *See* Black walnut
Butylated hydroxyanisole/butylated hydroxytoluene (BHA/BHT), 2:702*t*
BVT (bee venom therapy). *See* Apitherapy
Byakujutsu. *See* Atractylodes
Byers, Dwight, 3:1896
Byor-byed (Tibetan medicine), 4:2240
Bypass surgery. *See* Coronary artery bypass surgery
Byron, George Gordon, 1:122

C

C. botulinum food poisoning. *See* Botulism
C-reactive protein tests, 1:105; 2:1069–1071; 3:1778
CA: A Cancer Journal for Clinicians, 3:1353
CA-MRSA (community-acquired methicillin-resistant *Staphylococcus aureus*), 2:1175
CA125 blood protein, ovarian cancer and, 3:1669, 1672
Cabbage
itching, 2:1229
peptic ulcers, 4:2285
warts, 4:2363
Cactus
insulin resistance, 2:1200
ischemia, 2:1225
prickly pear, 2:1200; 3:*1810,* 1810–1814
Cadmium poisoning, 1:**371–372;** 2:1026, 1027
Caesarean section, 1:483
Caffeine, 1:**373–375,** 373*t*
asthma and, 1:156
bladder cancer and, 1:282
ephedra and, 2:771
fatigue and, 2:817, 818
fibrocystic breast disease and, 2:837
in green tea, 2:969
hangovers and, 2:989
in kola nuts, 1:373, 374; 2:1286, 1287
senior nutrition and, 4:2016
vs. theanine, 4:2220
CAG Functional Foods, 3:1819
Cage-free foods, 3:1643
CAGE questionnaires, 1:43; 4:2161
Cairo University, 1:273; 2:946
Caisse, Friseide, 2:791
Caisse, Rene, 2:790, 791
Calamine lotion
chickenpox, 1:478
contact dermatitis, 1:602
prickly heat, 3:1809
shingles, 4:2053
Calamus, for diverticulitis, 2:710
Calcarea carbonica, 1:**375–378**
heartburn, 2:1023
in homeopathy, 2:1083*t*
osteoporosis, 3:1665
Calcarea fluorica. See Calcium fluoride
Calcarea phos., 1:432
Calcarea sulph., 1:432
Calciferol. *See* Vitamin D
Calcipotriene, for psoriasis, 3:1837
Calcitonin, for osteoporosis, 3:1666
Calcium, 1:**378–381,** 378*t*
ADHD, 1:176
adolescents, 4:2201
in bonemeal, 1:305
boron and, 1:312
brewer's yeast and, 1:336
chickenpox, 1:478
chicory and, 1:482

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

childhood nutrition recommendations, 1:490, 491
constipation, 1:598
from dolomite, 2:716
endometriosis, 2:759
fatigue, 2:816
fractures, 2:865
in gallstones, 2:879
gamma-linolenic acid and, 2:882
heart attacks, 2:1012
heart disease, 2:1018
heavy metal poisoning, 2:1027
hyperparathyroidism and, 2:1130
kidney stones and, 2:1276, 1278
knee pain, 2:1283
lead contamination of, 1:462; 2:716, 717
for lead poisoning, 3:1318
leukemia, 3:1333
lung cancer, 3:1371
Lyme disease, 3:1386
magnesium and, 3:1405, 1406
as major mineral, 1:462
manganese and, 3:1423
menopause and, 3:1474, 1476
menstruation disorders, 3:1482, 1483
mononucleosis, 3:1514
muscle cramps, 3:1550
osteoporosis, 3:1663*t*, 1666
pain, 3:1685
Parkinson's disease, 3:1708
phosphorus and, 3:1745, 1747
potassium and, 3:1789
premenstrual dysphoric disorder, 3:1483
premenstrual syndrome, 3:1805
recommended amounts, 3:1663*t*
restless leg syndrome, 3:1911
seniors, 4:2017
shingles, 4:2053
sleep disorders, 4:2085
temporomandibular joint syndrome, 4:2207
tinnitus, 4:2242
veganism and, 4:2322
vegetarianism and, 4:2327
vitamin D and, 4:2346
See also Hypercalcemia

Calcium channel blockers
angina, 1:91
headaches, 2:1005
heart disease, 2:1018
hypertension, 2:1134
ischemia, 2:1226
Ménière's disease, 3:1467
migraine, 3:1500
Raynaud's syndrome, 3:1887

Calcium fluoride
in cell salt therapy, 1:432, 433
hemorrhoids, 2:1033

Calcium phosphate, 1:432

Calcium sulfate, 1:432

Calcium sulfide. *See Hepar sulphuris*

Calendula, 1:**382–383**
athlete's foot, 1:168
bedsores, 1:211
burns, 1:362
canker sores, 1:398
chickenpox, 1:478
contact dermatitis, 1:602
corns and calluses, 1:610
cradle cap, 1:620
cuts and scratches, 1:647, 648
dermatitis, 2:674
diaper rash, 2:695
eczema, 2:743
fractures, 2:864
fungal infections, 2:877
gonorrhea, 2:950
ingrown nails, 2:1191
mumps, 3:1546
pelvic inflammatory disease, 3:1724
radiation injuries, 3:1876
rashes, 3:1881
retinopathy, 3:1919
shingles, 4:2052
skin reactions, 1:55
sore throat, 4:1988
sties, 4:2141
stomachaches, 4:2143
sunburn, 4:2168
tonsillitis, 4:2245
toxic shock syndrome, 4:2252
trichomoniasis, 4:2268
vaginitis, 4:2309
wound care, 1:295
wounds, 4:2399

Calendula officinalis. *See* Marigold

Caliciviruses, gastroenteritis from, 2:906

California buckeye. *See* Horse chestnut

California buckthorn. *See* Buckthorn

California Department of Health, 1:81, 559

Calluses. *See* Corns and calluses

Calming acupressure technique, 1:14

Calorie recommendations
children, 1:490
seniors, 4:2013*t*
USDA revisions, 3:1614

Calotropis species. *See* Arka

Cambogia. *See* Garcinia

Camellia sinensis. *See* Tea; Theanine

Cameron, Ewan, 1:395

cAMP (cyclic adenosine monophosphate), forskolin and, 1:565–566

Campbell, Don, 4:2110

Camphor
bronchitis, 1:340
fever, 2:832
juvenile rheumatoid arthritis, 2:1253
prickly heat, 3:1809
rheumatic fever, 3:1922
whooping cough, 4:2380

Campion, Kitty, 2:754

Campylobacter jejuni, 2:858, 859*t*, 907

Canada balsam, for emphysema, 2:754

Canada tea. *See* Wintergreen

Canadensis. *See* Elder flower

Canadian Bureau of Prescription Drugs, 2:790

Canadian Cancer Society, 3:1825

Canadian College of Naturopathic Medicine, 3:1581

Canadian Health and Welfare Department, 2:790

Canadian Omega-3 pork, 2:847

Cananga odorata. *See* Ylang-ylang

Cancer, 1:**383–394,** 384*t*
AIDS-related, 1:35
allopathic *vs.* alternative medicine views, 1:386, 396
chills with, 1:495–496
glutamine and, 2:938
overview, 1:383–385
potassium and, 3:1789
rashes and, 3:1880
risk factors, 1:385–386
thermography for diagnosis, 4:2225–2227
veganism and, 4:2319
See also specific types of cancer

Cancer and Vitamin C (Pauling and Cameron), 1:395

Cancer Letters (journal), 4:2221

Cancer prevention
Allium cepa for, 1:58
antioxidants for, 1:110
apricot seed for, 1:129
beta carotene for, 1:227–228
cervical cancer, 1:451
colonic irrigation for, 1:574
colorectal cancer, 1:580, 581–582
copper for, 1:604
essential fatty acids and, 2:785
fenugreek for, 2:826
folic acid for, 4:2338
grape seed extract for, 2:960, 961
licorice for, 3:1342
linoleic acid for, 3:1348
lutein for, 3:1374
lycopene for, 3:1378
maitake for, 3:1412–1413
milk thistle for, 3:1503
omega-3 fatty acids for, 3:1632
ovarian cancer, 3:1672
overview, 1:393–394
passionflower for, 3:1716
peppermint for, 3:1731
prostate cancer, 3:1828–1829
soy protein for, 4:2115, 2116
turmeric for, 4:2280
vitamin A and, 4:2334–2335
vitamin C for, 4:2342
vitamin D for, 1:580; 4:2346–2347
vitamin E for, 4:2349
wasabi for, 4:2366

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

The Cancer Prevention Diet (Kushi and Jack), 1:396
Cancer Research, 2:1136
Cancer Research (journal), 3:1884
Cancer root. *See* Phytolacca
Cancer staging
breast cancer, 1:324
colorectal cancer, 1:580
Hodgkin's disease, 2:1074
prostate cancer, 3:1826
A Cancer Therapy, Results of Fifty Cases (Gerson), 1:395
Cancer treatment
acemannan for, 1:60
acidophilus for, 3:1305
anthroposophical, 1:104
antioxidants and, 3:1333–1334, 1370–1371
ashwaganda for, 1:152
astralagus for, 1:164; 2:1042
Ayurvedic medicine for, 1:195, 196
bee pollen with, 1:215
belladonna for, 1:222
biological, 1:394–398
bloodroot for, 1:297
burdock for, 1:359
cartilage supplements for, 1:410–411
cat's claw and, 1:422
chelidonium for, 1:467
Chinese skullcap for, 4:2076
chlorella for, 1:516
chondroitin for, 1:523
chymotrypsin and, 1:539
codonopsis root for, 1:553
coenzyme Q10 for, 1:555–556
colonic irrigation and, 1:574
colostrum for, 1:584
curcumin for, 1:642
dry mouth and, 2:721
ellagic acid for, 1:246
enzyme therapy for, 2:768
escharotic treatment for, 2:782–784
essiac tea for, 2:790–791
fo ti for, 2:855
gamma-linolenic acid for, 2:882–883
ganoderma for, 2:887, 888
garcinia for, 2:891
garlic for, 2:895
Gerson therapy for, 2:919
ginger for, 2:921
glutathione for, 2:940
goldenseal for, 2:948
grape seed extract for, 2:961
grape skin for, 2:964
green tea for, 2:967–968
guided imagery for, 3:1508
hibiscus for, 2:1064
high fiber diet for, 3:1614
hops for, 2:1100
Hoxsey formula, 2:1113–1115
hyperthermia for, 2:1136–1137
hypnotherapy for, 2:1142
immuno-augmentation therapy, 2:1158–1162
inositol for, 2:1192
juniper for, 2:1249
Kelley-Gonzalez diet for, 2:1266–1267
kombucha for, 2:1289, 1290
Korean ginseng for, 2:928
lacto-ovo vegetarianism for, 3:1302
linoleic acid for, 3:1348
macrobiotic diet for, 3:1397, 1398
magnolia for, 3:1410
maitake for, 3:1412–1413
manganese for, 3:1422
marijuana for, 3:1432
meditation for, 3:1449
mesoglycan for, 3:1490
metabolic therapies for, 3:1491–1492
mistletoe for, 3:1510, 1511
mugwort for, 3:1534
myrrh for, 3:1561
natural hormone replacement therapy for, 3:1570
neem for, 3:1589
neurolinguistic programming for, 3:1598
noni for, 3:1605, 1606
overview, 1:388–392
panchakarma for, 3:1689
pau d'arco for, 3:1719
periwinkle for, 3:1736
phytolacca for, 3:1748
probiotics for, 3:1820
prostate cancer, 3:1826–1828
psoralea seeds for, 3:1834
qigong for, 3:1859
quercetin for, 3:1865–1866
raspberry for, 3:1884
reflexology for, 3:1898
reishi mushroom for, 3:1903
resveratrol for, 3:1913
rhodiola rosea for, 3:1930
rhubarb for, 3:1934
ricin for, 1:414
rosemary for, 3:1950, 1951
royal jelly for, 3:1954
saffron for, 4:1968
selenium for, 4:2011
sesame oil for, 4:2030
sheep sorrel for, 4:2042
shiitake mushroom for, 4:2049–2050
suma for, 4:2165
Sun's soup for, 4:2169–2171
t'ai chi for, 4:2193
theanine for, 4:2221
thuja for, 4:2231
traditional African medicine for, 4:2253
traditional Chinese medicine for, 2:1042–1043, 1044
urine therapy for, 4:2295
vegetarianism for, 4:2326, 2328
vitamin B12 for, 4:2336
vitamin C for, 4:2343–2344
vitamin E for, 4:2349
vitamin K for, 4:2354
white peony root for, 4:2374
Wigmore diet for, 4:2382
wormwood for, 4:2396
Cancer Weekly Plus, 3:1884
Cancernic miasms, 2:1094
Cancerweed. *See* Sage
Candida albicans. *See* Yeast infections
Candida vulvovaginitis. *See* Vulvovaginal candidiasis
Candidal dermatitis, diaper rash from, 2:694, 695
Candidiasis. *See* Yeast infections
Candleberry. *See* Bayberry
Candlewick plant. *See* Mullein
Candy leaf. *See* Stevia
Canker sores, 1:**398–399**
vs. cold sores, 1:398, 561, 562
coptis for, 1:607
ganoderma for, 2:887
kava kava for, 2:1261
Cankerroot. *See* Coptis
Cankerwort. *See* Dandelion
Cannabinoids, in marijuana, 3:1432
Cannabis sativa. *See* Marijuana
Cannon, Walter, 3:1505; 4:2150
Canoe cedar. *See* Red cedar
Canola oil, in anti-inflammatory diet, 1:107
Canon of Medicinal Herbs. *See Shen Nong Ben Cao Jing* (Chinese text)
Cantharidin, 1:399, 401
Cantharis, 1:**399–401**
bites and stings, 1:261
burns, 1:362
chlamydia, 1:514
in homeopathy, 2:1083*t*
UTIs, 1:285
CAP (central auditory processing), 1:179–180
Capon's tail. *See* Valerian
Capra, Frank, 4:2037
Caprylic acid, for fungal infections, 2:877
Caps (contraception), 1:486
Capsaican
in cayenne, 1:426–427
gastritis, 2:902
neuralgia, 3:1596
pain, 3:1684
psoriasis, 3:1838
systemic lupus erythematosus, 4:2188
urinary incontinence, 4:2293
Capsaican inhalation test, 3:1539
Capsella bursa-pastoris. *See* Shepherd's purse
Capsicum frutescens. *See* Cayenne

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Capsules
defined, 1:318
of St. John's wort, 4:2132
Car sickness. *See* Motion sickness
Caraway
anemia, 1:85
irritable bowel syndrome, 2:1220
Carbamazepam, for hiccups, 2:1065
Carbamazepine
bipolar disorder, 1:258
epilepsy, 2:778
muscle cramps, 3:1550
trigeminal neuralgia, 3:1596, 1597
Carbamide. *See* Urea
Carbenia benedicta. *See* Blessed thistle
Carbidopa, for Parkinson's disease, 3:1709
Carbo vegetalis
gastrointestinal gas, 2:899
heartburn, 2:1023
indigestion, 2:1169
nausea, 3:1583
Carbohydrates
Atkins diet and, 1:171
in bitters, 1:266
hypoglycemia and, 2:1144–1145
McDougall diet and, 3:1444
morning sickness and, 3:1517
myopia and, 3:1557
obesity and, 3:1622
Ornish diet, 3:1646
overview, 3:1612
premenstrual syndrome and, 3:1807
senior nutrition and, 4:2015
Zone diet and, 4:2423, 2424, 2425
Carbolicum acidum, for bites and stings, 1:261
Carbon dioxide in blood, sleep apnea and, 4:2079
Carbon monoxide poisoning, 1:468
Carbonic anhydrase inhibitors, for glaucoma, 2:934
Carbonium sulphuratum, for Ménière's disease, 3:1466
Carboplatin, for ovarian cancer, 3:1672
Carbuncles
as abscesses, 1:1
coptis for, 1:607
defined, 1:302, 303
mullein for, 3:1536
scallion for, 4:1984
See also Boils
Carbunculosis, 1:303
Carcinogens
sassafras as, 4:1977
types, 1:386
Carcinomas, defined, 1:385
Cardamom
heartburn, 2:1023
laryngitis, 3:1308, 1309
stomachaches, 4:2143
vomiting, 4:2359
See also Grains-of-paradise fruit
Cardiac arrhythmia
digitalis and, 2:707
from ephedra, 2:770
ganoderma for, 2:888
ginkgo for, 2:922
horehound for, 2:1102
motherwort for, 3:1518
neem for, 3:1589
sleep apnea and, 4:2080
systemic lupus erythematosus and, 4:2187
Cardiac glycosides, 2:707
Cardiac ultrasound. *See* Echocardiography
Cardin. *See* Blessed thistle
Cardiopulmonary resuscitation (CPR), for heart attacks, 2:1012
Cardiovascular exercise. *See* Aerobic exercise
Cardiovascular syphilis, 4:2181
See also Syphilis
Cardiovascular system
alcohol effect on, 1:42
Allium cepa for, 1:58
antioxidants for, 1:110
applied kinesiology and, 1:126
bilberry for, 1:239
fo ti for, 2:854
ginkgo for, 2:922
gotu kola for, 2:953–954
honeysuckle for, 2:1098
horse chestnut for, 2:1105
osteopathy and, 3:1659
shepherd's purse and, 4:2044
sleep apnea and, 4:2080
stone massage for, 4:2145
systemic lupus erythematosus and, 4:2187
t'ai chi for, 4:2193
therapeutic touch and, 4:2222
white peony root for, 4:2374
Cardiovascular system diseases
acidophilus for, 3:1305
apitherapy for, 1:119
arginine for, 1:131
bioflavonoids for, 1:246; 2:1058–1059
black currant seed oil for, 1:275
bromelain for, 1:337, 338
butcher's broom for, 1:366–367
carnitine for, 1:402
cayenne for, 1:427, 428
chromium and, 1:529
coleus for, 1:566
dance therapy for, 2:657
EDTA chelation therapy for, 1:464, 465
from ephedra, 2:770, 772
ganoderma for, 2:888–889
grape seed extract for, 2:960, 961
hawthorn for, 2:995
herbal remedies and, 2:1052
hesperidin for, 2:1058–1059
homeopathy for, 2:1086
HRT and, 1:249; 3:1665
kudzu for, 2:1291–1292
lachesis for, 3:1299, 1300
lemongrass for, 3:1329
licorice for, 3:1342
lycopene for, 3:1378
massage therapy for, 3:1440
MSM for, 3:1530
muscle cramps and, 3:1549
peppermint for, 3:1729
pine bark extract for, 3:1756
polycystic ovarian syndrome and, 3:1778
quercetin for, 3:1866
raspberry for, 3:1883
schisandra for, 4:1990
selenium for, 4:2011
sildenafil citrate and, 2:1165
sleep apnea and, 4:2080
therapeutic touch for, 4:2224
turmeric for, 1:642
See also specific diseases
Cardiplant. *See* Hawthorn
Carditis, from rheumatic fever, 3:1921–1922, 1924
Cardus marianum. *See* Milk thistle
Carduus benedictus. *See* Blessed thistle
Career woman's disease. *See* Endometriosis
Caregivers
Alzheimer's disease, 1:68
Lou Gehrig's disease, 3:1362
CARET (Beta Carotene and Retinol Efficacy Study), 4:2093, 2334
Caries, dental. *See* Dental caries
Carminatives
irritable bowel syndrome, 2:1220
overview, 2:704
See also Gas (gastrointestinal)
Carnegie Mellon University, 3:1844
Carnitine, 1:**401–403**
chronic fatigue syndrome, 1:533
heart attacks, 2:1012
heart disease, 2:1018
peripheral neuropathy, 3:1734
Carosella. *See* Fennel
Carotenemia, vegetarianism and, 4:2328
Carotenes, defined, 1:404
Carotenoids, 1:**403–407**, 403*t*; 3:1374
as antioxidant, 1:110–111, 112
cataracts, 1:416
conversion to vitamin A, 4:2332, 2333
Parkinson's disease, 3:1708
retinopathy, 3:1919
See also Beta carotene; Lutein; Lycopene

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Carotenosis, 1:229, 406
Carotid endarterectomy
cerebral vascular insufficiency, 1:448
transient ischemic attacks, 2:1226
Carpal tunnel syndrome, 1:*407*, **407–409**
bromelain for, 1:337
Hellerwork for, 2:1030–1031
manganese for, 3:1422
massage therapy for, 3:1440
myotherapy for, 3:1558
osteopathy for, 3:1658
prolotherapy for, 3:1823
pyridoxine for, 3:1857
rhus toxicodendron for, 3:1936
Rolfing for, 3:1941
Russian massage for, 3:1959
Swedish massage for, 4:2172, 2174
tea tree oil for, 4:2198
trigger point therapy for, 4:2270
yoga for, 2:993
Carpenter's weed. *See* Yarrow
Carpets, poisoning and, 1:468
Carrier oils and lotions (aromatherapy), 1:140, 318; 2:788
Carson, Christine, 4:2197
Carter, H. Ballentine, 4:1979
Carthamus tinctorius. See Safflower flower
Cartier, Jacques, 2:963; 3:1755
Cartilage
glucosamine and, 2:935
juvenile rheumatoid arthritis, 2:1253
Kaposi's sarcoma, 2:1259
osteoarthritis, 3:1654
transplantation, 3:1657
Cartilage supplements, 1:**410–412**
Carum carvi. See Caraway
Cascara
in Hoxsey formula, 2:1114, 1115
irritable bowel syndrome, 2:1220
Case-taking, in homeopathy, 2:1086–1087, 1090, 1095
See also Diagnostic approaches
Case-weed. *See* Shepherd's purse
Casein, autism and, 1:190
Cassals, Biel, 4:1972
Cassia species. *See* Senna
Casteneda, Carlos, 4:2037
Castleman, Michael, 1:269, 270; 2:921
Castor oil, 1:**412–415**, *413*
childbirth, 1:270
constipation, 1:598–599
fibrocystic breast disease, 2:837
gastroenteritis, 2:907
ovarian cysts, 3:1676
pelvic inflammatory disease, 3:1724
tetanus, 4:2216
Castroville, California, artichokes in, 1:148
CAT scans. *See* Computed tomography scans
Cat thyme, for worms, 4:2393
Cataplexy, 3:1563–1564
Catapres (clonidine), for Tourette syndrome, 4:2250
Cataracts, 1:**415–419**
bilberry for, 1:238, 239, 417
chelidonium for, 1:466
cicada for, 1:541
grape seed extract for, 2:960
lazy eye and, 3:1314, 1315
lutein for, 3:1374
night blindness and, 3:1603
quercetin for, 3:1865, 1866
riboflavin for, 3:1938
selenium for, 4:2011
triphala for, 4:2272
vitamin C for, 4:2342
Catarrh. *See* Congestion
Catatonic schizophrenia, 4:1992, 1994
Catechins
bioflavonoids, 1:247
evening primrose oil, 2:800
fo ti, 2:854
Catechol-O-methyltransferase (COMT), for Parkinson's disease, 3:1709
Catechu powder, for gum diseases, 2:978
Caterpillar fungus. *See* Cordyceps
Catharanthus roseus. See Periwinkle
Catheters
antibiotic-coated, 1:295
for urinary incontinence, 4:2293
CATIE (Clinical Antipsychotic Trials of Intervention Effectiveness Schizophrenia Study), 4:1998
Catmint. *See* Catnip
Catnip, 1:*419*, **419–420**
colic, 1:568
fever, 4:1987
fractures, 2:864
hay fever, 2:999
pleurisy, 3:1768
sleep disorders, 4:2085
stomachaches, 4:2143
Cat's claw, 1:**420–423**, *421*
in herbal cold remedies, 2:1046
inflammatory bowel disease, 2:1185
Cattail, 2:1229; 3:1881
Caulis bambusae in taeniis, for vomiting, 4:2358
Caulis spatholobi, for systemic lupus erythematosus, 4:2188
Caulis tripterygii. See Thunder god vine
Caulophyllum (homeopathic remedy), 1:298–299
Caulophyllum thalictroides. See Blue cohosh
Causticum, 1:213; 4:2293
Cauterization, for warts, 2:914; 4:2364
Caveman diet. *See* Paleolithic diet
Caventon, J., 1:560
Cavitations, 2:1078
Cavities. *See* Dental caries
Cayce, Edgar, 1:423, 425, *425*
Cayce, Hugh Lynn, 1:425
Cayce systems, 1:*423*, **423–426**
Cayenne, 1:*426*, **426–429**
blood clots, 1:292
diabetes, 2:689
fatigue, 2:816
frostbite, 2:873
hay fever, 2:999
headaches, 2:1004
irritable bowel syndrome, 2:1220
itching, 2:1229
juvenile rheumatoid arthritis, 2:1253
knee pain, 2:1282
laryngitis, 3:1308–1309
mumps, 3:1546
Raynaud's syndrome, 3:1887
shingles, 4:2052, 2053
tennis elbow, 4:2213
CBER (Center for Biologics Evaluation and Research), 4:2216
CBT. *See* Cognitive-behavioral therapy
CCRUM (Central Council for Research in Unani Medicine), 4:2289, 2290
CD4 cells
AIDS, 1:33, 34, 36
Ménière's disease, 3:1465
shingles, 4:2054
CDC. *See* Centers for Disease Control and Prevention
CDSA (comprehensive diagnostic stool analysis), 2:723
Ce bai ye. *See* Thuja
Cedar, red. *See* Red cedar
Cedars-Sinai Hospital, 1:270
Cedarwood
for fungal infections, 2:1176
as insect repellent, 2:1230
for jock itch, 2:1240
for UTIs, 1:285
CEE (conjugated equine estrogen), 1:248
Cefixime, for gonorrhea, 2:951
Ceftriaxone
conjunctivitis, 1:595
gonorrhea, 2:951
kidney infections, 2:1274
syphilis, 4:2185
Celery
knee pain, 2:1282
migraine, 3:1501
natural hormone replacement therapy and, 3:1573

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Celiac disease, 1:**429–432**
gluten-free diet for, 2:941–945
lipase and, 3:1350–1351
Celiac Disease Foundation, 2:941
Celiac sprue. *See* Celiac disease
Celiac Sprue Association, 2:941, 943
Cell culture tests
blood poisoning, 1:294
chlamydia, 1:513
gonorrhea, 2:950
pneumonia, 3:1772
whooping cough, 4:2379
Cell division
arginine, 1:130
cancer, 1:384–385
Cell salt therapy, 1:**432–434;** 3:1629
Cell therapy, 1:**434–437;** 4:2277
Cellasene, 1:439
Cellophane tape tests, 3:1704
Cellular suspensions. *See* Cell therapy
Cellulases, 2:768
Cellulite, 1:*437,* **437–440;** 2:961
Celsus, Aulus Cornelius, 4:2265
Celtic Pharmaceuticals, 4:2094
Centaury flower essence, 1:198; 2:850*t,* 851
Centella asiatica. See Gotu kola
Center for Biologics Evaluation and Research (CBER), 4:2216
Center for Food Safety and Applied Nutrition (CFSAN)
borage, 1:311
botanical medicine regulation, 1:320
ginseng, 2:931
regulation implementation plan, 1:419; 3:1504; 4:1969
Center for Health and Aging Studies, 3:1844
Center for Mind/Body Medicine, 1:192; 3:1691
Center for Mindfulness in Medicine, Health care and Society, 3:1452
Centers for Disease Control and Prevention (CDC)
AIDS, 1:32, 35
Ayurvedic medicine, 1:195; 3:1690
chickenpox, 1:476, 479
childhood nutrition, 1:494
childhood obesity, 1:489
chlamydia, 1:512
chronic fatigue syndrome, 1:531
DTaP vaccine, 4:2216
environmental factors in illness, 2:677
environmental therapy, 2:767
exercise, 2:804
food poisoning, 2:858
gastroenteritis, 2:906
gonorrhea, 2:950, 951
halofantrine, 3:1417
heart attacks, 2:1014
high sensitivity C-reactive protein test, 2:1071
HPV, 1:449
influenza, 2:1186–1187, 1189
ischemia, 2:1226
lead poisoning, 2:1026; 3:1315, 1316, 1318
Lyme disease, 3:1384
melatonin, 3:1459
MMR vaccine, 3:1547
mumps, 3:1545
parasitic infections, 3:1703, 1704
pneumonia, 3:1770
radiation injuries, 3:1873, 1876
ricin, 1:413
SARS, 3:1772
scabies, 4:1981
syphilis, 4:2180
trichomoniasis, 4:2268
tuberculosis, 4:2277
whooping cough, 4:2380
worms, 4:2394
Centesimal (c) scale, homeopathy, 1:118, 346
Central alveolar hyperventilation syndrome, 4:2083
Central auditory processing (CAP), 1:179–180
Central Council for Research in Unani Medicine (CCRUM), 4:2289, 2290
Central nervous system diseases
memory loss and, 3:1461, 1463
neck pain and, 3:1584, 1585
from parasitic infections, 3:1704, 1705
polycystic ovarian syndrome and, 3:1776–1777
Central nervous system stimulants. *See* Stimulants
Central New York State Homeopathic Society, 1:118
Central sleep apnea, 4:2079–2080, 2083
Centralization (Bates method), 1:207
Centrally acting agonists, for hypertension, 2:1134
Ceramic glazes, lead in, 2:716–717
Cerato flower essence, 1:198; 2:850*t,* 851
Cerebral electrical stimulation, for sensory integration disorder, 4:2026
Cerebral embolisms. *See* Embolic strokes
Cerebral palsy, 1:**440–446,** 627
Cerebral thrombosis. *See* Thrombosis
Cerebral vascular accidents. *See* Strokes
Cerebral vascular insufficiency, 1:**446–448**
Cerebrospinal fluid, 3:1469, 1471–1472; 4:2183
Cerebrovascular disease, dementia and, 2:664, 665
Cerrato, Paul L., 1:120
Certification and licensing
acupressure, 1:15
acupuncture, 1:19, 187
Alexander technique, 1:49
anthroposophical medicine, 1:104
applied kinesiology, 1:128
aromatherapy, 1:141
art therapy, 1:147–148
Aston-Patterning, 1:162–163
behavioral optometry, 1:217
biofeedback, 1:245
Breema, 1:334–335
Buteyko method, 1:370
Cayce systems, 1:425
chelation therapy, 1:466
Chinese food cures, 1:504
Chinese massage, 1:500
chiropractic, 1:511; 4:2122
clinical laboratories, 4:1974
craniosacral therapy, 1:628
cymatic therapy, 1:650
dance therapy, 2:657–658
environmental therapy, 2:767
facial massage, 2:811
Feldenkrais method, 2:820
geriatric massage, 2:918
gluten-free foods, 2:943
hatha yoga, 2:994–995
Hellerwork, 2:1032
herbal medicine, 2:1053
holistic dentistry, 2:1079
holistic medicine, 2:1082
Holotropic breathwork, 1:333
homeopathy, 1:433–434; 2:1088, 1092, 1096
hypnotherapy, 2:1142–1143
infant massage, 2:1173
journal therapy, 2:1244–1245
lomilomi, 3:1359
lymphatic drainage, 3:1389
martial arts, 3:1438
massage therapy, 3:1442
mind/body medicine, 3:1508–1509
movement therapy, 3:1527
music therapy, 3:1553
myotherapy, 3:1558–1559; 4:2271
naturopathic medicine, 1:320; 2:1053; 3:1579, 1581
neural therapy, 3:1595
nutrition, 1:494–495; 4:2204
organic foods, 3:1643
ortho-bionomy, 3:1649
osteopathy, 3:1661–1662; 4:2121–2122
panchakarma, 3:1691
Pilates, 3:1751
polarity therapy, 3:1775
pranic healing, 3:1792
pregnancy massage, 3:1802

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Certification and licensing *(continued)*
psychophysiology, 3:1842
psychotherapy, 3:1849
radionics, 3:1879
reflexology, 3:1898–1899
reiki, 3:1902
Rolfing, 3:1943
Rosen method, 3:1953
Rubenfeld synergy method, 3:1958
Russian massage, 3:1960
shiatsu, 4:2047
shintaido, 4:2057
somatics, 4:2104
spirituality needs, 3:1795
sports massage, 4:2126
stone massage, 4:2146
Swedish massage, 4:2174
thermography, 4:2227
traditional Chinese medicine, 2:1045; 4:2258
Trager psychophysical integration, 4:2260–2261
trigger point therapy, 4:2271
unani-tibbi, 4:2290
yoga, 4:2414
See also Education and training; Regulation and oversight
Cervical cancer, 4:2298–2300
cervical dysplasia and, 1:451
HPV and, 1:386
immuno-augmentation therapy and, 2:1160
riboflavin for, 3:1939
Cervical disk herniation, 2:1054, *1054, 1055*
Cervical dysplasia, 1:**449–452;** 4:2298
folic acid for, 2:856
naturopathic medicine for, 3:1580
usnea for, 1:451; 4:2298
uterine cancer and, 4:2300
Cervical mucus, 2:1180; 3:1722
Cervix
dilation of, in childbirth, 1:483
infertility and, 2:1180, 1181
CES (cerebral electrical stimulation), for sensory integration disorder, 4:2026
Cestodes. *See* Tapeworms
Ceterach officinarum, for worms, 4:2393
Cetraria islandica. See Iceland moss
Cevimeline, for dry mouth, 2:721
CFIDS (chronic fatigue and immune disorder syndrome). *See* Chronic fatigue syndrome
CFS. *See* Chronic fatigue syndrome
CFSAN. *See* Center for Food Safety and Applied Nutrition
Chace, Marian, 2:655–656
Chaenomeles speciosa, for muscle cramps, 3:1550
Chagas disease, in transplant patients, 3:1703
Chai-hu. *See* Chinese thoroughwax
Chaitow, Leon, 3:1660
Chakra balancing, 1:**452–453;** 2:1125
Chakras
color therapy, 1:577
overview, 1:453
reiki, 3:1900
Chalice of Repose project, 3:1553
Challenge foods. *See* Elimination diet
Chamaemelum nobilis, 1:454
See also Chamomile
Chamomile, 1:**453–456,** *454*
ADHD, 1:176
alcoholism, 1:44
anorexia nervosa, 1:100
anxiety, 1:115, 116
in aromatherapy, 1:137*t,* 139
asthma, 1:157
athlete's foot, 1:169
binge eating disorder, 1:241
boils, 1:303
bruxism, 1:344
bunions, 1:357
burns, 1:362
canker sores, 1:398
chickenpox, 1:478
chills, 1:496
colic, 1:568
common cold, 2:1046, 1047
conjunctivitis, 1:595
constipation, 1:599
cradle cap, 1:620
cuts and scratches, 1:648
dermatitis, 2:674
diarrhea, 2:698
diverticulitis, 2:710
dry mouth, 2:721
ear infections, 2:733
eczema, 2:743
epilepsy, 2:777
fever, 4:1987
fibromyalgia, 2:840
fractures, 2:864
fungal infections, 2:877
gastritis, 2:902
gastrointestinal gas, 2:899
gum diseases, 2:978
heartburn, 2:1023
holistic dentistry and, 2:1077
in homeopathy, 2:1083*t*
in hydrotherapy, 2:1121
hypertension, 2:1133
inflammatory bowel disease, 2:1184
insomnia, 2:1196
irritable bowel syndrome, 2:1220
juvenile rheumatoid arthritis, 2:1253
knee pain, 2:1283
low back pain, 3:1365
measles, 3:1446
Ménière's disease, 3:1466, 1467
menstruation disorders, 3:1482, 1483
morning sickness, 3:1517
nausea, 3:1583
osteoarthritis, 3:1656
ovarian cysts, 3:1676
pain, 3:1685
panic disorders, 3:1698
peptic ulcers, 4:2285
phobias, 3:1743
post-traumatic stress disorder, 3:1785
pregnancy, 3:1799
premenstrual syndrome, 3:1806
psoriasis, 3:1836
radiation injuries, 3:1876
rashes, 3:1881, 1882
rheumatic fever, 3:1922
rheumatoid arthritis, 3:1926
rosacea, 3:1945
shingles, 4:2053
sleep disorders, 4:2085
stomachaches, 4:2143
stress, 4:2151, 2152
teething, 4:2205
toothaches, 4:2247
wheezing, 4:2372
whooping cough, 4:2380
Champagne of life. *See* Kombucha
Chan tui. *See* Cicada
Chancres, from syphilis, 4:2181, 2185
Channels, energy. *See* Meridians
Chanting, 4:2108, 2109–2110
Charcoal, activated. *See* Activated charcoal
Charcot, Jean-Martin, 3:1847
Charcot-Marie-Tooth syndrome, 3:1734
Charging of crystals, 1:637
Charleston bending brace, for scoliosis, 4:2005
Chartres Cathedral labyrinth, 3:1295, 1296, 1297
Chasteberry tree, 1:**458–461,** *459*
amenorrhea, 1:72
dysmenorrhea, 2:729
fibrocystic breast disease, 2:838
infertility, 2:1180, 1181
menopause, 3:1475
menstruation disorders, 3:1482
ovarian cancer, 3:1671
ovarian cysts, 3:1676
premenstrual syndrome, 3:1806
sexual dysfunction, 4:2033
Chaucer, Geoffrey, 4:2311
Cheadle, William, 3:1922
Checkerberry. *See* Squawvine; Wintergreen
Cheesefruit. *See* Noni
Chelated minerals, 1:**461–464**
Chelation therapy, 1:**464–466**
atherosclerosis, 1:166
cadmium poisoning, 1:372
chemical poisoning, 1:473
dementia, 2:666
detoxification and, 2:679

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

gangrene, 2:886
heavy metal poisoning, 2:1027
ischemia, 2:1225
lead poisoning, 3:1319
mercury poisoning, 3:1489
multiple chemical sensitivity, 3:1540
Chelidonium, 1:**466–467**
Chelone glabra. *See* Balmony
Chemical AIDS. *See* Multiple chemical sensitivity
Chemical burns, defined, 1:361
See also Burns
Chemical exposure
applied kinesiology, 1:125
bladder cancer, 1:280
multiple chemical sensitivity, 3:1538, 1539, 1540
sick building syndrome, 4:2058, 2059
veganism, 4:2320
Chemical peels. *See* Skin resurfacing
Chemical poisoning, 1:**467–474;** 2:860*t*
chlorella for, 1:516
from contaminated food, 2:858, 858*t*
fasting and, 2:814
memory loss and, 3:1461
Chemonucleolysis, for herniated disks, 2:1057
Chemotherapy
anemarrhena for, 1:80
antioxidants and, 3:1333–1334
astralagus for, 1:164; 2:1042
bladder cancer, 1:281
breast cancer, 1:325
cancer, 1:391–392
Chinese thoroughwax and, 1:504
coenzyme Q10 with, 1:555
colorectal cancer, 1:581
cuscuta with, 1:645
ganoderma for, 2:1042
gelsemium and, 2:909
hair loss and, 2:983
Hodgkin's disease, 2:1074–1075
homeopathy for, 2:1086
hypercortisolemia, 2:1125
hyperthermia with, 2:1136
hypnotherapy for, 2:1142
immuno-augmentation therapy and, 2:1159, 1161
Kaposi's sarcoma, 2:1259
leukemia, 3:1334, 1335
lung cancer, 3:1372
lymphomas, 3:1420
marijuana for, 3:1432
ovarian cancer, 3:1671–1672
polyporus for, 2:1042
prostate cancer, 3:1827–1828
pyridoxine for, 3:1857
sheep sorrel for, 4:2042
Siberian ginseng for, 2:931
skin cancer, 4:2074
traditional Chinese medicine and, 2:1042
Chen Pi. *See* Tangerine peel
Chen-resigs. *See* Quan yin
Chen Xiang, for stomachaches, 4:2144
Chenopodium ambrosioides, for worms, 4:2393
Chernobyl nuclear accident of 1986, 3:1874
Cherokee people, horsetail use, 2:1106
Cherries
for gout, 2:957
melatonin in, 3:1460
See also Berries
Cherrix, Starchild Abraham, 2:1114
Cherry, wild. *See* Wild cherry
Cherry bark, 1:**474–476,** *475*
Cherry plum flower essence
as flower remedy, 1:197–198; 2:850*t*, 851
in Rescue Remedy, 3:1908, 1909
in Rescue Sleep, 4:2085
Chest pain. *See* Angina
Chestnut bud flower essence, 1:198; 2:850*t*, 851
Chewing, gastrointestinal gas from, 2:899
Chewing gum, for heartburn, 2:1024
Cheyenne people, echinacea use, 2:738
CHF. *See* Chronic heart failure
Chi
acupressure, 1:13, 15
acupuncture, 1:17; 3:1791
chakra balancing, 1:453
Chinese food cures, 1:502, 503
Chinese massage, 1:498–499
cupping, 1:639
feng shui, 2:821–823, *822*
healing imagery, 2:972
martial arts, 3:1437
pulse diagnosis, 3:1855
qigong, 3:1859–1860
shiatsu, 4:2046
shintaido, 4:2056
t'ai chi, 4:2191
Thai massage, 4:2218, *2218*, 2219
traditional Chinese medicine, 2:1042; 4:2256, 2257
Chick wittles. *See* Chickweed
Chickenpox, 1:*476*, **476–479**
arsenicum album for, 1:144
cicada for, 1:541
mercurius vivus for, 3:1484
neem for, 3:1588
pulsatilla for, 3:1852
rhus toxicodendron for, 3:1936
shingles and, 1:478; 4:2051
urine therapy for, 4:2295
warts, 4:2363
yarrow for, 4:2402
Chickenpox vaccine, 1:479
Chickweed, 1:**479–481**
diaper rash, 2:695
eczema, 2:743
hives, 2:1072
itching, 2:1229
measles, 3:1446
menopause, 3:1475
rashes, 3:1881
skin reactions, 1:55
Chickweed wintergreen. *See* Wintergreen
Chicory, 1:**481–482**
calcium and, 1:380
as flower remedy, 1:199; 2:850*t*, 851
fructooligosaccharides in, 2:874
Chien Chin Chih Tai Wan, 1:179
Chigong. *See* Qigong
Chilblains, tea tree oil for, 4:2198
Child development
anxiety, 1:114
cerebral palsy, 1:441–442, 444
lead poisoning, 3:1315–1316, 1317, 1318
mercury poisoning, 3:1489
organic *vs.* non-organic foods, 3:1643
poisoning, 1:470
sensory integration, 4:2024–2025
sickle cell anemia, 4:2061, 2062, 2063
Child psychotherapy, 3:1848
Childbirth, 1:**483–486**
black cohosh for, 1:270
black haw for, 1:276
blue cohosh for, 1:270, 298, 299
castor oil for, 1:270
cerebral palsy and, 1:440, 441
cotton root bark for, 1:616
evening primrose oil for, 1:270
fenugreek and, 2:827
genital herpes and, 2:910, 912
grains-of-paradise for, 2:959
hepatitis and, 2:1037
hibiscus for, 2:1064
horehound for, 2:1102
hydrotherapy for, 2:1120
hypnotherapy for, 2:1141
juniper for, 2:1249
Kegel exercises and, 2:1263, 1264
lavender for, 3:1311
lomilomi for, 3:1358
massage therapy during, 3:1802
motherwort for, 3:1518
moxibustion for, 3:1528
mugwort for, 3:1533
music therapy for, 3:1553
osteopathy for, 3:1658
parsley for, 3:1712
reflexology for, 3:1898
Rosen method for, 3:1953
safflower for, 4:1965
squawvine for, 4:2129
stages, 1:483
therapeutic touch for, 4:2223
urinary incontinence and, 4:2291
wormwood for, 4:2396

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Childhood nutrition, 1:**486–495,** 487*t*, 488*t*, 489*t*
Childhood-onset diabetes. *See* Diabetes mellitus
Children
ADHD, 1:174–178
AIDS, 1:33, 35–36
aromatherapy for, 1:141
art therapy for, 1:146–147
asthma, 1:154
autism, 1:*188*, 188–191
bipolar disorder, 1:257
calcium needs, 1:378*t*, 380
chickenpox in, 1:476–479
Chinese massage for, 1:499
cold remedies and, 2:1045
constipation, 1:597, 599–600
croup, 1:635–636
depression, 2:668–669, 668*t*
diarrhea, 2:696; 4:1963
ear infections, 2:731
eczema, 2:741
epilepsy, 2:776, 778
gastroenteritis, 2:906, 908
gingivostomatitis, 1:562
herbal remedies and, 2:1052
hypnotherapy for, 2:1142
influenza, 2:1186–1187
iron and, 2:1215*t*, 1216
juvenile rheumatoid arthritis, 1:310; 2:1251–1254
lazy eye, 3:1313–1315
lead poisoning, 2:1026, 1027; 3:1315–1316, 1317, 1318
leukemia, 3:1332, 1335
lice infestations, 3:1336–1337
massage therapy for, 3:1442
music therapy for, 3:1552
obesity, 1:488*t*, 489–490, 491; 3:1622
poison exposures, 1:457
post-traumatic stress disorder, 3:1783
psychotherapy for, 3:1848
radiation injuries, 3:1873, 1874
Saccharomyces boulardii for, 4:1963
secondhand smoke, 4:2092
sickle cell anemia, 4:2061, 2063
sleep disorders, 4:2083, 2086
strokes, 4:2063
syphilis, 4:2182
toxic shock syndrome, 4:2251
whooping cough, 4:2378–2379
Children's Hospital Oakland Research Institute, 2:697
Children's Memorial Hospital, 2:908
Chile Ministry of Health, 2:857
Chilean clover. *See* Alfalfa
Chili peppers. *See* Cayenne
Chills, 1:**495–497**
Chinese thoroughwax for, 1:504
fever and, 2:830
magnolia for, 3:1410
from malaria, 3:1415–1416
from mononucleosis, 3:1514
scallion for, 4:1984
thunder god vine for, 4:2234
white willow for, 4:2376
Chimaphila. *See* Prince's pine; Wintergreen
Chimeric monoclonal antibodies, 1:97
Chimney-sweeps. *See* Plantain
China rose. *See* Hibiscus
Chinchona officinalis, for anemia, 2:1216
Chinese angelica. *See* Dong quai
Chinese bupleurum. *See* Chinese thoroughwax
Chinese caterpillar fungus. *See* Cordyceps
Chinese chrysanthemum flower. *See* Chrysanthemum flower
Chinese club moss. *See* Lycopodium
Chinese cornbind. *See* Fo ti
Chinese cucumber, for chickenpox, 1:478
Chinese dodder. *See* Cuscuta
Chinese food cures, 1:**501–504**
Chinese foxglove root, 1:**497–498**
anemia, 1:85
infertility, 2:1180
iron in, 2:1216–1217
ovarian cancer, 3:1671
Chinese gentiana. *See* Gentiana
Chinese goldenthread. *See* Coptis
Chinese herbal medicine, 2:**1041–1045**
See also Herbal medicine; Traditional Chinese medicine
Chinese history
Bencao gangmu, 3:1856
Chinese herbal medicine, 2:1041–1042
martial arts, 3:1436
quan yin, 3:1863
t'ai chi, 4:2191
traditional Chinese medicine, 4:2255
Chinese Kung-Fu Wu-Su Association, 3:1438
Chinese licorice. *See* Licorice
Chinese massage, 1:**498–501;** 4:2257
Chinese medicine. *See* Traditional Chinese medicine
Chinese motherwort. *See* Motherwort
Chinese pediatric massage, 1:499
Chinese Pharmacopoeia, eucalyptus in, 2:793
Chinese philosophy
Chinese food cures, 1:502–503
Chinese herbal medicine, 2:1042
feng shui, 2:821
martial arts, 3:1436, 1437
massage, 1:498–499
qigong, 3:1859
Chinese rhubarb root. *See* Rhubarb root
Chinese skullcap
hay fever, 1:55; 2:999
overview, 4:2076, 2077
shingles, 4:2053
in Sun's soup, 4:2170
wheezing, 4:2372
Chinese tea. *See* Green tea
Chinese thoroughwax, 1:**504–505**
cirrhosis, 1:548
fever, 2:832
indigestion, 2:1169
jaundice, 2:1236
jock itch, 2:1240
obsessive-compulsive disorder, 3:1629
rheumatoid arthritis, 3:1926
rubella, 3:1956
systemic lupus erythematosus, 4:2188
Chinese wolfberry. *See* Lycium fruit
Chinese yam, 1:**506–507;** 4:2144
Chippewa people, horsetail use, 2:1106
Chiqian. *See* Gastrodia
Chiromatica medica (Meyers), 2:1212
Chiropractic, 1:**507–512,** *508;* 4:2121, 2122
applied kinesiology and, 1:125, 127, 128
bursitis, 1:364
Cayce systems and, 1:424
chronic fatigue syndrome, 1:533
ear infections, 2:733
epididymitis, 2:775
headaches, 2:1002*t*, 1004
herniated disks, 2:1056, 1058
as holistic medicine, 2:1081
hypercortisolemia, 2:1125
low back pain, 3:1365, 1366
Ménière's disease, 3:1466
menstruation disorders, 3:1483
mercury poisoning, 3:1489
neck pain, 3:1586
neuralgia, 3:1597
pain, 3:1686
pinched nerves, 3:1753
sciatica, 4:2002
scoliosis, 4:2005
sleep disorders, 4:2085
Chitrak, for stomachaches, 4:2144
Chladni, Ernst, 1:649
Chlamydia, 1:**512–515**
conjunctivitis and, 1:594, 595
epididymitis from, 2:774
infertility and, 2:1178
pelvic inflammatory disease and, 3:1722
pneumonia from, 3:1770
Chlorella, 1:**515–518,** *516;* 2:1027
Chlorine, 1:462
Chlorophyll
in barley, 1:205
for body odor, 1:301
for Lyme disease, 3:1386

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Chloroquine, for malaria, 3:1416
Chlorpromazine, for hiccups, 2:1065
Chocolate
for chronic fatigue syndrome, 1:533
depression and, 2:670
for diarrhea, 2:697
Cholangiography, 2:881
Cholecalciferal. *See* Vitamin D
Cholecystectomy, 2:880–881
Cholecystitis, 2:879
Choledocholithiasis, 2:879
Cholelithiasis, 2:879
Cholera
garlic for, 2:895
gastroenteritis from, 2:907
ignatia for, 2:1157
lysimachia for, 3:1391
marijuana for, 3:1432
rhubarb for, 3:1934
traditional African medicine for, 4:2253
Cholescintigraphy, 2:880
Cholesterol, 1:**518–521,** 518*t*, 519*t*
chromium and, 1:529
defined, 2:784
fenugreek and, 2:826
fish oil and, 2:841
in gallstones, 2:879
guggul and, 2:970
gymnema and, 2:980
heart disease and, 2:1019
lecithin and, 3:1323
lemongrass and, 3:1329
maitake and, 3:1413
Mexican yam and, 3:1496
omega-3 fatty acids and, 3:1631
in Ornish diet, 3:1645–1646
red yeast rice extract and, 1:91, 519, 520; 3:1892–1895, *1893*
soy protein and, 4:2115
vegetarianism and, 4:2327
wild oat and, 4:2384
See also Low-density lipoprotein cholesterol
Cholesterol, high. *See* Hypercholesterolemia
Cholestin, 3:1893, 1894
See also Red yeast rice extract
Cholestyramine, 2:698, 1221
Choline, 1:**521–523**
cirrhosis, 1:547
endometriosis, 2:759
peripheral neuropathy, 3:1734
uterine fibroids, 4:2302
Chondroitin, 1:**523–525**
glucosamine and, 2:936
interstitial cystitis, 2:1202
low back pain, 3:1365
mucopolysaccharides in, 3:1490–1491
osteoarthritis, 1:410, 411; 3:1656
seniors, 4:2017
Chondrus crispus. *See* Irish moss
Chonlin. *See* Coptis
Chopra, Deepak
Ayurvedic medicine, 1:192, 194, 453
panchakarma, 3:1689, 1691
Chorea, 3:1511
Choroidal neovascularization, 3:1400, 1401
Choudury, Bikram, 2:993
Christian Science healing, 1:**525–528;** 2:1142; 3:1793
Christianity
spiritual healing, 3:1793, 1794, 1795
vegetarianism, 4:2324
Christy, Martha M., 4:2296
Chromatherapy. *See* Color therapy
Chromium, 1:**528–530,** 529*t*
in brewer's yeast, 1:335
diabetes, 2:688
glaucoma, 2:933
heart attacks, 2:1012
heart disease, 2:1018
heavy metal poisoning, 2:1027
hypoglycemia, 2:1146
ischemia, 2:1225
leukemia, 3:1333
lung cancer, 3:1371
pancreatitis, 3:1695
peripheral neuropathy, 3:1734
polycystic ovarian syndrome, 3:1779
as trace mineral, 1:462
Chronic bronchitis
anemarrhena for, 1:80
apricot seed for, 1:129
overview, 1:339, 340–341
sulfur for, 4:2163
See also Bronchitis
Chronic chemical exposure, 1:467, 468, 470, 471
Chronic cystic mastitis. *See* Fibrocystic breast disease
Chronic diarrhea, defined, 2:695
See also Diarrhea
Chronic diseases
anemia and, 1:84, 85
arsenicum album for, 1:144
Ayurvedic medicine for, 1:195–196
colonic irrigation for, 1:574
cytokines and, 1:105
dysbiosis and, 2:722–723
fasting for, 2:812, 813
hypnotherapy for, 3:1508
inflammation and, 1:106, 108
miasms theory and, 1:376
mindfulness meditation for, 3:1507
pneumonia and, 3:1771, 1772–1773
poisoning and, 1:470
qigong for, 3:1859
reiki for, 3:1900
Siberian ginseng for, 2:931
silica for, 4:2067
sulfur for, 4:2163
tea tree oil for, 4:2198
Tibetan medicine for, 4:2239
vegetarianism for, 4:2326
yoga for, 4:2409
See also Degenerative diseases; *specific diseases*
Chronic fatigue syndrome (CFS), 1:**530–535;** 2:815–816
ashwaganda for, 1:152
carnitine for, 1:402
coenzyme Q10 for, 1:556
craniosacral therapy for, 1:533, 627
environmental therapy for, 2:765
Gulf War syndrome and, 2:974
homeopathy for, 2:1094, 1096
Kelley-Gonzalez diet for, 2:1267
Korean ginseng for, 2:928
lysine for, 3:1392
magnesium for, 3:1406
manganese for, 3:1422
massage therapy for, 3:1442
noni for, 3:1605
panchakarma for, 3:1689
potassium for, 3:1787
prince's pine for, 3:1815
probiotics for, 3:1820
reflexology for, 3:1897
reishi mushroom for, 3:1903
Rosen method for, 3:1953
Siberian ginseng for, 2:931
suma for, 4:2165, 2166
tea tree oil for, 4:2198
wild oat for, 4:2385
Chronic heart failure (CHF)
arginine for, 1:131
relaxation therapy for, 3:1906
Chronic insomnia, 2:1194
Chronic leukemias, 3:1332
See also Leukemia
Chronic lymphocytic thyroiditis. *See* Hashimoto's thyroiditis
Chronic obstructive pulmonary disease (COPD), 1:339; 2:753
Chronic pain
defined, 3:1683–1684
shiatsu for, 4:2046
Swedish massage for, 4:2172, 2174
Trager psychophysical integration for, 4:2259
tui na massage for, 4:2257
See also Pain
Chronic periodontitis, defined, 2:976
See also Periodontitis
Chronic persistent hepatitis, 2:1038
Chronic pyelonephritis. *See* Kidney infections
Chronic venous insufficiency, 1:366–367; 4:2317

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Chrysanthemum flower, 1:**535–537**
prickly heat, 3:1809
retinopathy, 3:1919
sleep disorders, 4:2085
Chrysanthemum leucanthemum. See Ox-eye daisy
Chrysanthemum parthenium. See Feverfew
Chrysanthemum weed. *See* Mugwort
Chuan bei mu. *See* Fritillaria
Chuan Lian Gen Pi, for worms, 4:2393
Chuan Lian Zi, for pleurisy, 3:1768
Chuan wou tou. *See* Aconite
Chuan xin lian. *See* Andrographis
Chuchupate. *See* Osha
Chujo-Hime, 3:1863
Chung Kuo Chung Yao Tsa Chih (journal), 1:551, 552
Chung Kuo Yao Li Hsueh Pao (journal), 1:552
Church of Christ, Scientist, 1:525–528
Church of Jesus Christ of Latter-Day Saints, 2:1142
Chvostek's sign, 3:1404
Chymopapain, 2:1057
Chymotrypsin, 1:**537–540**
Chyun sam ling. *See* Andrographis
Chzud-shi (Tibetan text), 4:2239
Cialis (tadalafil), 2:1165; 3:1832
Cicada, 1:**540–542,** *541*
rubella, 3:1956
tetanus, 4:2215
Cichorium intybus. See Chicory
Cider vinegar, apple, 1:122–124
Ciguatera fish poisoning, 2:860, 862
Ciguatoxin, 2:862
Cilantro, for bites and stings, 1:261
Ciliary body, Adie's pupil and, 1:22
Cimicifuga racemosa. See Black cohosh
Cina. *See Artemisia cina*
Cinacalcet, for hyperparathyroidism, 2:1130
Cinnamomum camphora. See Camphor
Cinnamomum cassia. See Cinnamon bark
Cinnamomum zeylanicum. See Cinnamon bark
Cinnamon bark, 1:**542–545**
atractylodes with, 1:174
bronchitis, 1:340
common cold, 2:1046
food poisoning, 2:861
fungal infections, 2:877
heartburn, 2:1023
laryngitis, 3:1308
Ménière's disease, 3:1466
ovarian cancer, 3:1671
polycystic ovarian syndrome, 3:1779
stomachaches, 4:2144
UTIs, 1:285
wheezing, 4:2373
Cinnamon wood. *See* Sassafras
Ciprofloxacin, for gonorrhea, 2:951
Circadian rhythms
hangovers, 2:987
jet lag, 2:1237–1238
riboflavin, 3:1937
sleep disorders, 4:2083, 2086
Circulation (journal), 2:1071
Circulatory system. *See* Cardiovascular system
Cirrhosis, 1:**545–549**
ademetionine for, 3:1493
colchicum for, 1:560
dandelion for, 2:659
hepatitis and, 1:545–546, 548, 549; 2:1037, 1038, 1040
lycopodium for, 3:1381
milk thistle for, 3:1503
oligomeric proanthocyanidins for, 2:963
Cisapride, for indigestion, 2:1170
Cisplatin, for ovarian cancer, 3:1671
CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora), 2:1099
Citricidal, 2:966
Citrin extract, 1:245; 4:2393
Citrus aurantium. See Neroli
Citrus bergamia. See Bergamot
Citrus bioflavonoids, 2:1058–1059
Citrus oils
depression, 2:670
epilepsy and, 2:777
fatigue, 2:816
photosensitizing nature, 1:140, 141; 2:789
Citrus paradisi. See Grapefruit seed extract
Citrus reticulata. See Tangerine peel
Citrus seed extract
food poisoning, 2:861
tuberculosis, 4:2276
City of Hope, 2:961
Clap. *See* Gonorrhea
Clappendpouche. *See* Shepherd's purse
Claritin, for hives, 2:1072
Clark, Bobby, 2:690
Clark, John H., 2:1255
Clary sage. *See* Sage
Classic migraine. *See* Migraine with aura
Classic of Internal Medicine. See Nei Jing
Classical prescribing homeopathy. *See* Constitutional prescribing homeopathy
Clay. *See* Bentonite clay; French green clay
Cleaning agents
tea tree oil as, 4:2198
toxicity, 1:468
Cleansers and protectors (traditional Chinese medicine), 2:1051
Cleansing, in crystal healing, 1:637
Cleansing therapy. *See* Detoxification
Clearing, in crystal healing, 1:637
Cleavers
dermatitis, 2:674
infections, 2:1176
mononucleosis, 3:1514
mumps, 3:1546
staphylococcal infections, 4:2136
strep throat, 4:2148
tonsillitis, 4:2245
Clematis
as flower remedy, 1:198; 2:850*t*, 851
in Rescue Remedy, 3:1908, 1909
in Rescue Sleep, 4:2085
Clement, R. John, 2:1159
Clementis chinensis
cirrhosis, 1:548
jaundice, 2:1236
Clemson University, 3:1536
Cleocin (clindamycin), 3:1417; 4:2310
Cleopatra (queen), 1:60
Clergyman's knee. *See* Bursitis
Cleveland Clinic Foundation, 2:804, 973; 4:2081
CLIA (Clinical Laboratory Improvement Amendments of 1988), 4:1974
Client-centered therapy, 3:1845, 1848
Clindamycin, 3:1417; 4:2310
Clinical Antipsychotic Trials of Intervention Effectiveness (CATIE) Schizophrenia Study, 4:1998
Clinical Cancer Research, 2:847
Clinical ecology. *See* Environmental therapy
Clinical Gastroenterology & Hepatology, 3:1866
Clinical inventories. *See* Psychological tests
Clinical Journal of Pain, 4:2047
Clinical Laboratory Improvement Amendments of 1988 (CLIA), 4:1974
Clinical thermology, 4:2227
Clinical trials
cancer treatment, 1:392
cell therapy, 1:435
chelation therapy, 1:465
coix, 1:558
Diabetes Prevention Program, 2:690–691
gymnema, 2:980
hawthorn, 2:996

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Kelley-Gonzalez diet, 2:1266–1267
placebo effect and, 3:1761, 1762
probiotics, 1:570
spiral computed tomography, 3:1369
Clinician's Complete Reference to Complementary and Alternative Medicine, 3:1953
Clinistix diabetes tests, 2:687
Clinton, Bill, 2:1052
Clock flower. *See* Dandelion
Clomiphene citrate (Clomid), 2:1181; 3:1778
Clonazepam
epilepsy, 2:778
neuralgia, 3:1597
panic disorders, 3:1699
sleep disorders, 4:2086
Clonidine, for Tourette syndrome, 4:2250
Clopidogrel, for angina, 1:91
Closed-angle glaucoma, 2:932, 933, *933,* 934
See also Glaucoma
Closed fractures, defined, 2:863
See also Fractures
Closed reduction, for fractures, 2:865
Clostridial myonecrosis, 2:885–886
Clostridium botulinum food poisoning. *See* Botulism
Clostridium difficile infections, probiotics for, 3:1819
Clostridium perfringens, gangrene from, 2:885–886
Clostridium tetani. See Tetanus
Clot-bur. *See* Burdock root
Clot-dissolving agents. *See* Fibrinolytic agents
Clothburr. *See* Burdock root
Clotrimazole, 2:1241; 4:2268
Clots, blood. *See* Blood clots
Clove
bronchitis, 1:340
dysbiosis, 2:724
food poisoning, 2:861
laryngitis, 3:1308
rubella, 3:1956
toothaches, 4:2247
worms, 4:2393
Clozapine
bipolar disorder, 1:258
Parkinson's disease, 3:1709
schizophrenia, 4:1998
Club moss, 1:**549–551,** *550*
See also Lycopodium
Clue cells, 4:2309
Cluster headaches, 2:1001, 1003
Cnahata, 1:453
Cnicus benedictus. See Blessed thistle
Cnidium seeds, 1:**551–553;** 2:1229
CNN (Cable Network News), 4:2319
Co-dependency, alcoholism and, 1:45
Coagulation, vitamin K and, 4:2353
Coal tar shampoos and salves, 2:661–662, 674
Cobalain. *See* Vitamin B12
Cobalamin. *See* Vitamin B12
Cobb angle, for scoliosis measurement, 4:2005
Cobra position, for constipation, 1:599
Coca-Cola, kola nut in, 2:1287
Cocaine, 1:256; 4:2160–2161
Coccinia indica, for diabetes, 2:689
Cocculus Indicus
dizziness, 2:713
Ménière's disease, 3:1466
motion sickness, 3:1521
Coccus Cacti, for whooping cough, 4:2379
Cochlear implants, for hearing loss, 2:1009
Cochleitis, 2:1008
Cochran, Amy, 3:1941
Cocklebur/cockle buttons. *See* Burdock root
Coconut oil
cuts and scratches, 1:648
lice infestations, 3:1338
Cocowort. *See* Shepherd's purse
Cocum. *See* Phytolacca
Cod liver oil
arthritis, 3:1685
ear infections, 2:735
essential fatty acids in, 2:786, 842
multiple sclerosis, 3:1543
Codonopsis pilosula. See Codonopsis root
Codonopsis root, 1:**553–554**
atractylodes with, 1:174
vomiting, 4:2358
Coelomic metaplasia endometriosis theory, 2:758
Coenzyme A, pantothenic acid and, 3:1699–1700
Coenzyme Q10, 1:**555–557**
aging, 1:30
as antioxidant, 1:111, 112
chronic fatigue syndrome, 1:533
dementia, 2:665
gum diseases, 2:977
hay fever, 1:55
heart disease, 2:1018
migraine, 3:1501
Parkinson's disease, 3:1708
radiation injuries, 3:1876
seniors, 4:2017
in wheat germ, 4:2368
Coenzyme R. *See* Biotin
Coffea cruda, for anxiety, 1:115
Coffee
asthma, 1:156
chicory and, 1:482
enemas with, 1:395; 2:919, 920, 1267
Cognex (tacrine), for Alzheimer's disease, 1:69
Cognitive anxiety, defined, 1:113
See also Anxiety
Cognitive-behavioral therapy (CBT)
ADHD, 1:176
anxiety, 1:116
binge eating disorder, 1:241
bulimia nervosa, 1:353–354
chronic fatigue syndrome, 1:533
depression, 2:670
infertility, 2:1181
irritable bowel syndrome, 2:1221
migraine, 3:1500
obsessive-compulsive disorder, 3:1629
overview, 1:218, 219; 3:1845, 1846*t*
panic disorders, 3:1698
phobias, 3:1743–1744
post-traumatic stress disorder, 3:1785, 1786
premenstrual dysphoric disorder, 3:1483
schizophrenia, 4:1998
seasonal affective disorder, 4:2008
stress, 4:2152
temporomandibular joint syndrome, 4:2207
tinnitus, 4:2243
Tourette syndrome, 4:2249
Cognitive function. *See* Brain function
Cognitive rehearsal, 1:219
Cohen, Bonnie Bainbridge, 3:1526
Cohen, Ken ("Bear Hawk"), 3:1565, 1566
Coix, 1:**557–559,** *558*
Cola nitida. See Kola
Cola species. *See* Kola nut
Colbenemid (colchicine), 1:560; 2:957
Colbin, Annemarie, 1:487, 491
Colchicine, 1:560; 2:957
Colchicum, 1:**559–561,** *560;* 2:957; 3:1800
Cold, common. *See* Common cold
Cold antibody hemolytic anemia, 1:84
Cold compresses
bedsores, 1:211
bites and stings, 1:262
bruises, 1:342
bunions, 1:357
bursitis, 1:364
conjunctivitis, 1:595
fibrocystic breast disease, 2:837
fibromyalgia, 2:839
frostbite, 2:872
gout, 2:957
headaches, 2:1004
hemorrhoids, 2:1033
itching, 2:1229
laryngitis, 3:1309
low back pain, 3:1365
menopause, 3:1476

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Cold compresses *(continued)*
migraine, 3:1500
muscle cramps, 3:1550
ovarian cysts, 3:1676
overview, 2:1122
rosacea, 3:1945
sciatica, 4:2002
shingles, 4:2053
sunburn, 4:2168
tendinitis, 4:2210
tennis elbow, 4:2212
toothaches, 4:2246, 2247
Cold-Eeze, 2:1046
Cold exposure
asthma, 1:154
frostbite, 2:871–872
rosacea, 3:1946
Cold laser light therapy, 3:1344, 1344*t*
Cold sores, 1:**561–565**
arginine and, 1:131
vs. canker sores, 1:398, 561, 562
grapefruit seed extract for, 2:965
hyssop for, 2:1152
jojoba oil for, 2:1242
lemon balm for, 3:1327
quercetin for, 3:1865
rhus toxicodendron for, 3:1936
stevia for, 4:2138
zinc for, 4:2421
Cold stimulation tests, for Raynaud's syndrome, 3:1887
Colectomy
Crohn's disease, 1:633–634
inflammatory bowel disease, 2:1185
Coleus, 1:447, *565*, **565–567**
Coley, William B., 2:1136
Coley's toxins, 2:1136
Colgan, Michael, 1:110
Colic, 1:**567–569**
anise for, 1:94
chamomile for, 1:455
cramp bark for, 1:622
craniosacral therapy for, 1:627
curanderismo and, 1:640
fennel for, 2:824
feverfew for, 1:536, 537
hops for, 2:1100
juniper for, 2:1249
lemon balm for, 3:1327
massage therapy for, 2:1172
Mexican yam for, 3:1495
parsley for, 3:1712
peppermint for, 3:1728, 1729
rosemary for, 3:1951
Rosen method for, 3:1953
Russian massage for, 3:1959
saffron for, 4:1967
spearmint for, 4:2119
St. John's wort for, 4:2131
thyme for, 4:2237
turmeric for, 1:642
Colitis, 1:**569–572**
acidophilus for, 1:5
activated charcoal for, 1:457
chickweed for, 1:480
comfrey for, 1:587
copper and, 1:605–606
kelp for, 2:1269
lacto-ovo vegetarianism for, 3:1302
marsh mallow for, 3:1435
meditation for, 3:1449
panchakarma for, 3:1689
passionflower for, 3:1715
periwinkle for, 3:1736
plantain for, 3:1764
probiotics for, 3:1819
Rosen method for, 3:1953
squawvine for, 4:2129
urine therapy for, 4:2295
veganism for, 4:2319
vegetarianism for, 4:2326
yucca for, 4:2418
See also Irritable bowel syndrome; Ulcerative colitis
Collagen
for acne, 1:9
cellulite and, 1:437
copper and, 1:603
eucommia bark and, 2:795–796
glaucoma and, 2:932, 933
Kampo medicine and, 2:1257
for low back pain, 3:1365
potassium and, 3:1787
for urinary incontinence, 4:2293
vitamin C and, 4:2342
College of American Pathologists, 2:1070; 4:2300
College of Optometrists and Vision Development, 1:217
College of Osteopathic Medicine, 3:1659
College of Syntonic Optometry, 4:2178, 2179
Colloidal silver, 1:*572*, **572–574;** 4:2363
Colocynthis
irritable bowel syndrome, 2:1220
menstruation disorders, 3:1483
ovarian cysts, 3:1676
pelvic inflammatory disease, 3:1724
sciatica, 4:2002
stomachaches, 4:2144
Colon
diverticulitis and, 2:708–710
polyps in, 1:379, 522, 579
toxic dilation, 2:1183
Colon cancer
folic acid for, 2:856, 857
high fiber diet for, 2:1067
inflammatory bowel disease and, 2:1183, 1185
methionine for, 3:1494
quercetin for, 3:1866
reishi mushroom for, 3:1903
resveratrol for, 3:1913
vitamin D for, 4:2346–2347
See also Colorectal cancer
Colonic irrigation, 1:*574*, **574–576;** 2:1121
detoxification, 2:679
heavy metal poisoning, 2:1027
hot flashes, 2:1110
probiotics and, 3:1821
warts, 4:2363
Colonoscopy
colitis, 1:570
colorectal cancer, 1:571, 579, 580, 582
Crohn's disease, 1:632
diverticulitis, 2:709, 710
Color days (Bates method), 1:207
Color therapy, 1:**576–578**
aura color therapy and, 1:182–183
Chinese food cures and, 1:503
fatigue, 2:817
premenstrual syndrome, 3:1805
Colorado cough root. *See* Osha
Colorectal cancer, 1:578–582, **578–582**
colitis and, 1:571
colonic irrigation for, 1:574
hyperthermia for, 2:1137
immuno-augmentation therapy and, 2:1160
psyllium for, 3:1850
See also Colon cancer
Colored light therapy, 3:1344–1345, 1344*t*
night blindness, 3:1604
rhinitis, 3:1929
sleep disorders, 4:2085
syntonic optometry, 4:2178–2179
Colorings. *See* Artificial food colorings; Pigments
Colors
bruises, 1:342
chakras, 1:453
See also specific colors
Colostomy
colitis, 1:571
colorectal cancer, 1:581
diverticulitis, 2:710
Colostrum, 1:**582–585**
Colposcopy, for cervical dysplasia, 1:450
Coltsfoot, 1:**585–587,** *586*
bronchitis, 1:340
headaches, 2:1004
laryngitis, 3:1309
migraine, 3:1501
wheezing, 4:2372
whooping cough, 4:2379
Columbia University
ganoderma, 2:888
lecithin, 3:1323
seasonal affective disorder, 4:2008
vitamin E, 4:2350
Comas
myxedema, 2:1149
therapeutic touch for, 4:2223

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Combination drug therapy, for AIDS, 1:39
Combination homeopathic remedies, 2:829–830
Combining of foods. *See* Food combining
Combucha tea. *See* Kombucha
Comedolytics, for acne, 1:8
Comedones, 1:6, 9
Comfrey, 1:**587–589**
burns, 1:362
cradle cap, 1:620
cuts and scratches, 1:648
fractures, 2:864
irritable bowel syndrome, 2:1220
itching, 2:1229
knee pain, 2:1282
Ménière's disease, 3:1466
peptic ulcers, 4:2285
rashes, 3:1881
Commensal bacteria, 2:1174
Commiphora abyssinica. *See* Myrrh
Commiphora molmol. *See* Myrrh
Commiphora mukul. *See* Guggul
Commiphora myrrha. *See* Myrrh
Commiphora opobalsamum. *See* Balm of Gilead
Commission for Massage Therapy Accreditation/Approval
geriatric massage, 2:918
massage therapy, 3:1442
sports massage, 4:2126
Swedish massage, 4:2174
Committee of Safety of Medicines (CSM), 2:1261
Common bryony. *See* Bryonia
Common buckthorn. *See* Buckthorn
Common bugloss. *See* Borage oil
Common burdock. *See* Burdock root
Common cold, 1:**589–593**
anise for, 1:94
apple cider vinegar for, 1:123
arsenicum album for, 1:144
ashwaganda for, 1:152
astralagus for, 1:164
black cumin seed extract for, 1:273
boneset for, 1:306, 307
bromelain for, 1:338
catnip for, 1:419
chamomile for, 1:455
chrysanthemum for, 1:535
cicada for, 1:541
cinnamon for, 1:544
cranberry for, 1:625
echinacea for, 2:739
elder flower for, 2:747
ephedra for, 2:771
eucalyptus for, 2:793, 794
exercise and, 2:804
eyebright for, 2:807
fennel for, 2:824
feverfew for, 2:833
field mint for, 4:2117
ganoderma for, 2:887
garlic for, 2:896
grapefruit seed extract for, 2:966
Hepar sulphuris for, 2:1035
herbal remedies, 2:1045–1048
homeopathy for, 2:1086, 1089
hyssop for, 2:1152
Iceland moss for, 2:1155
Kampo medicine for, 2:1257
kava kava for, 2:1260
kelp for, 2:1269
laryngitis and, 3:1307, 1310
lobelia for, 3:1354
lomatium for, 3:1356, 1357
lycopodium for, 3:1380, 1381
mercurius vivus for, 3:1484
natrum muriaticum for, 3:1569
neem for, 3:1588
nux vomica for, 3:1616, 1617
oregano for, 3:1639
orthomolecular medicine for, 3:1650
osha for, 3:1653
pennyroyal for, 3:1726
peppermint for, 3:1728
prickly pear cactus for, 3:1811
psychosomatic medicine and, 3:1844
pulsatilla for, 3:1852, 1853
raspberry for, 3:1884
red cedar for, 3:1889
rhinitis and, 3:1928, 1929
rhus toxicodendron for, 3:1936
scallion for, 4:1984
shiitake mushroom for, 4:2049
Siberian ginseng for, 2:931
silica for, 4:2067
sinus infections and, 4:2068
sneezing and, 4:2095
stevia for, 4:2138
sulfur for, 4:2163
thuja for, 4:2232
thunder god vine for, 4:2235
urine therapy for, 4:2295
usnea for, 4:2298
vitamin C for, 3:1650; 4:2341*t*, 2343
white willow for, 4:2376
witch hazel for, 4:2389
yarrow for, 4:2402
yerba santa for, 4:2407, 2408
zinc for, 4:2419–2420
Common hibiscus. *See* Hibiscus
Common honeysuckle. *See* Honeysuckle
Common migraine. *See* Migraine headaches
Common oleander, cardiac glycosides from, 2:707
Common periwinkle. *See* Periwinkle
Common plantain. *See* Plantain
Common sorrel. *See* Sheep sorrel
Communication disorders
auditory integration training, 1:180, 181
autism, 1:188, 189
cerebral palsy, 1:445
dyslexia, 2:725–727
pet therapy, 3:1738
Community-acquired methicillin-resistant *Staphylococcus aureus* (CA-MSRA), 2:1175
Compass plant/weed. *See* Rosemary
Compensated cirrhosis, 1:547
See also Cirrhosis
Complementary medicine, defined, 2:1080
Complete decongestive physiotherapy, 3:1388–1389
Complete fractures, defined, 2:863
See also Fractures
Complete Guide to Prescription & Nonprescription Drugs, 1:381
Complete proteins, 3:1301; 4:2322, 2327
Complex autism, defined, 1:189
See also Autism
Complex carbohydrates. *See* Carbohydrates
Complex decongestive therapy, 3:1388
Complex partial seizures, 2:776, 778
Compliance with therapy
rheumatic fever antibiotics, 3:1922–1923
schizophrenia, 4:1996–1997
tuberculosis, 4:2278
Complicated cataracts, 1:416
Compound fluidextract of trifolium, 4:2184
Compound fractures, defined, 2:863
See also Fractures
Compounding pharmacists, 2:1110
Comprehensive Clinical Evaluation Program (Department of Defense), 2:975
Comprehensive diagnostic stool analysis (CDSA), 2:723
Compresses
for bites and stings, 1:261
for blisters, 1:290
for chickenpox, 1:478
chicory, 1:481
comfrey, 1:587
eyebright, 2:807
for fractures, 2:864
garlic, 2:897
for glaucoma, 2:934
overview, 2:1121, 1122
rosemary, 3:1951
for tuberculosis, 4:2276
for vaginitis, 4:2309
for whooping cough, 4:2380
witch hazel, 4:2389, 2390
for wounds, 1:295
See also Cold compresses; Hot compresses; Poultices

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Compression treatment
edema, 2:746
headaches, 2:1004
tendinitis, 4:2210
varicose veins, 4:2317
wounds, 4:2399
Compulsions
defined, 3:1627
Tourette syndrome, 4:2248
Computed tomography scans (CT)
colorectal cancer, 1:580
herniated disks, 2:1056
hyperthyroidism, 2:1138
ischemia, 2:1224–1225
jaundice, 2:1234
kidney stones, 2:1277
lung cancer, 3:1369
memory loss, 3:1462
neck pain, 3:1585
osteoarthritis, 3:1655
osteoporosis, 3:1664
pancreatitis, 3:1694, 1696
radiation injuries and, 3:1873
Comvita, Inc., 3:1429
Concentration meditation, 3:1449
See also Meditation
Concussions (homeopathy), 2:1090
Conditionally essential nutrients, 1:73, 226–227
Conditioning
in behavioral therapy, 1:218–219
hyperopia and, 2:1127
Shangri-la diet and, 4:2037, 2039, 2040
somatics and, 4:2103
Condoms
AIDS, 1:39
chlamydia, 1:515
contraception, 1:486
epididymitis, 2:775
genital herpes, 2:912, 915
gonorrhea, 2:951
STDs, 4:2269
trichomoniasis, 4:2269
Conduct disorder, ADHD and, 1:177
Conductive hearing loss, 2:1006–1007, 1009
Conductive keratoplasty, 2:1128
Condylomata acuminata. *See* Genital warts
Condylomata lata, from syphilis, 4:2181
Cone of light (eardrum), 2:733
Coneflower. *See* Echinacea
Confucianism, 3:1436, 1859
Cong bai/xu. *See* Scallion
Congenital cataracts, 1:416
Congenital glaucoma, 2:932
See also Glaucoma
Congenital night blindness, 3:1603
Congenital rubella syndrome, 3:1956, 1957
Congenital scoliosis, 4:2004
See also Scoliosis
Congenital syphilis, 4:2182, 2185
Congenital thyroid deficiency, 2:1148
Congestion
anise for, 1:94
apple cider vinegar for, 1:123
arsenicum album for, 1:145
balm of Gilead for, 1:200
Chinese thoroughwax for, 1:504
comfrey for, 1:587
ephedra for, 2:771
eucalyptus for, 2:793, 794
eyebright for, 2:807
feverfew for, 2:833
hyssop for, 2:1152
kali bichromium for, 2:1255
lomilomi for, 3:1358
magnolia for, 3:1410
peppermint for, 3:1730, 1731, 1732
phytolacca for, 3:1748
pinellia for, 3:1757
scallion for, 4:1984
sweet clover for, 4:2175
tea tree oil for, 4:2198
thyme for, 4:2237
triphala for, 4:2272
yerba santa for, 4:2408
Congestive heart failure (CHF)
coenzyme Q10 for, 1:555, 556
coleus for, 1:566
creatine for, 1:629
juniper for, 2:1249
potassium for, 3:1787
sodium and, 4:2101
Conium maculatum
dizziness, 2:713
Ménière's disease, 3:1466
Conization, for cervical dysplasia, 1:450
Conjugated equine estrogen (CEE), 1:248
Conjugated linoleic acid. *See* Linoleic acid
Conjunctivitis, 1:**593–596**
chamomile for, 1:455
cicada for, 1:541
coptis for, 1:607
euphrasia for, 2:798
eyebright for, 2:807
gentiana for, 2:916
goldenseal for, 2:948
Hepar sulphuris for, 2:1035
manuka honey for, 3:1428, 1429
pulsatilla for, 3:1853
red clover for, 3:1891
rhubarb for, 3:1934
triphala for, 4:2272
turmeric for, 1:642
Connective tissue diseases, Raynaud's syndrome and, 3:1886, 1887
Connective tissue theory of aging, 1:29
Conrad, Emilie, 3:1526
Consensus Group on Interstitial Cystitis/Painful Bladder Syndrome, 2:1201
Conservation efforts. *See* Endangered species
Consound. *See* Comfrey
Constipation, 1:**596–600,** *597*
acidophilus for, 3:1305
aloe for, 1:60, 61; 2:705
biota for, 1:251
bitters for, 2:705
boneset for, 1:306, 307; 2:797
brewer's yeast for, 1:336
buckthorn for, 1:348–350
castor oil for, 1:412, 415
chamomile for, 1:455
Chinese foxglove root for, 1:497
cramp bark for, 1:622
damiana for, 2:653
dandelion for, 2:659
dong quai for, 2:718
fenugreek for, 2:826
fo ti for, 2:854
gardenia for, 2:894
gentiana for, 2:916
goldenseal for, 2:948
grains-of-paradise for, 2:959
gymnema for, 2:980
hemorrhoids and, 2:1032, 1034
high fiber diet for, 2:1067; 3:1613
irritable bowel syndrome and, 2:1219
kelp for, 2:1269
licorice for, 3:1342
lycopodium for, 3:1380
magnesium for, 3:1405
magnolia for, 3:1410
marijuana for, 3:1432
McDougall diet for, 3:1443
noni for, 3:1605
nux vomica for, 3:1616
ophiopogon for, 3:1637
parsley for, 3:1712
phytolacca for, 3:1748
prickly pear cactus for, 3:1811
psyllium for, 3:1764, 1850, 1851
pulsatilla for, 3:1853
red clover for, 3:1891
rhubarb for, 3:1934, 1935
Rosen method for, 3:1953
Russian massage for, 3:1959
safflower for, 4:1965
senna for, 4:2018–2020
sepia for, 4:2028
sesame oil for, 4:2029, 2030
shiatsu for, 4:2046
shiitake mushroom for, 4:2049
sulfur for, 4:2163
therapeutic touch for, 4:2224
triphala for, 4:2272
urinary incontinence and, 4:2292
vegetarianism for, 4:2326
white peony root for, 4:2374

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

yellow dock for, 4:2406, 2407
yoga for, 2:993; 4:2409
Constitutional prescribing homeopathy, 1:376–377; 2:**1092–1097**
See also Homeopathy
Constitutions (Ayurvedic medicine), 1:192, 578
Consumer Products Safety Commission, 3:1317
Consumer Reports
calcium supplements, 2:716
ginseng, 2:929, 931
HeadOn headache formula, 3:1685
ConsumerLab, LLC
herbal cold remedies, 2:1047
MSM, 3:1531
saw palmetto, 4:1980
valerian, 4:2312
Consumption. *See* Tuberculosis
Consumptive's weed. *See* Yerba santa
Contact dermatitis, 1:**601–603**
common causes, 1:54
defined, 1:53; 2:742
diaper rash, 2:694
hydrotherapy and, 2:1123
overview, 2:672–673
treatment, 1:55, 56
Contact laxatives, 1:414, 415
Contact lenses
astigmatism, 1:160
myopia, 3:1556
Contact tracing, for syphilis, 4:2185
Contaminated food. *See* Food contamination
Contaminated herbal remedies
anemarrhena, 1:81
colchicum, 1:559
cold remedies, 2:1047
5-HTP, 2:844–845
ginseng, 2:931
homeopathic remedies, 2:1091, 1095
Kampo medicine, 2:1257
lead poisoning, 3:1317
MSM, 3:1531
raspberry, 3:1884
valerian, 4:2312
Contamination radiation injuries, 3:1875
Contingency contracting, 1:218
Continuation therapy, for leukemia, 3:1334
Continuous positive airway pressure (CPAP), 4:2081, 2086, 2098
Continuum movement, 3:1526
Contraception
cinnamon for, 1:544
cotton root bark for, 1:616
evodia fruit for, 2:801
neem for, 3:1588
overview, 1:485–486; 3:1800
pelvic inflammatory disease and, 3:1721, 1725
therapeutic touch and, 4:2222
See also Oral contraceptives
Contractions (childbirth), 1:483–484
Contractures
cerebral palsy, 1:442
juvenile rheumatoid arthritis, 2:1251
Lou Gehrig's disease, 3:1361
Contrast hydrotherapy. *See* Hydrotherapy
Controlled pauses (Buteyko method), 1:369
Contusions. *See* Bruises
Convallaria majalis. *See* Lily of the valley
Convallatoxin, 2:707
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), 2:1099
Conventional medicine. *See* Allopathic medicine
Convergence (vision), 2:1126
Convulsions. *See* Seizures
Cook, James, 2:1260; 4:2197
Cooking
potassium and, 3:1788
prickly pear cactus, 3:1812
See also Culinary uses; Diet
Cool compresses. *See* Cold compresses
Cooling vests, for multiple sclerosis, 3:1543
Coon root. *See* Bloodroot
Copaxone (glatiramer acetate), for multiple sclerosis, 3:1543
COPD (chronic obstructive pulmonary disease), 1:339; 2:753
Copper, 1:**603–606,** 603*t*
chronic fatigue syndrome, 1:532–533
eczema, 2:743
gum diseases, 2:977
hair loss, 2:984
heavy metal poisoning, 2:1027
juvenile rheumatoid arthritis, 2:1253
leukemia, 3:1333
lung cancer, 3:1371
natural hormone replacement therapy and, 3:1573
seniors, 4:2017
toxicity, 1:463
as trace mineral, 1:462
Copper deficiency, 1:603–604
Coprolalia, Tourette syndrome and, 4:2247, 2249
Coptidis. *See* Coptis
Coptis, 1:*606*, **606–608**
gonorrhea, 2:950
malaria, 3:1416
parasitic infections, 3:1705
Coral snake bites, 1:259
Cordyceps, 1:**608–609**
anxiety, 1:116
common cold, 1:591
influenza, 2:1188
panic disorders, 3:1698
Core needle biopsy, for breast cancer, 1:324
Cornea
astigmatism, 1:159
lazy eye, 3:1314
myopia, 3:1554
Cornell-New York Hospital, 3:1386
Cornell University, 1:156; 3:1761
Corns and calluses, 1:**609–611**
castor oil for, 1:414
chelidonium for, 1:467
dandelion for, 2:659
grapefruit seed extract for, 2:966
Cornsilk, 1:**611–613**
bedwetting, 1:213, 611, 612
buchu with, 1:348
UTIs, 1:285
Cornus, 1:**613–614**
Coronary angiography. *See* Angiography
Coronary angioplasty. *See* Balloon angioplasty
Coronary artery bypass surgery
angina, 1:92
atherosclerosis, 1:167
heart attacks, 2:1013
heart disease, 2:1018–1019
ischemia, 2:1226
Coronary artery disease. *See* Heart diseases
Coronary heart disease
borage for, 1:310
EDTA chelation therapy for, 1:464, 465
epimedium for, 2:781
fish oil for, 2:841
ganoderma for, 2:888
guggul for, 2:970
heart attacks and, 2:1010–1011, 1012
high sensitivity C-reactive protein test and, 2:1069, 1071
low fat diet for, 3:1614
meditation for, 3:1451
MSM for, 3:1530
notoginseng for, 3:1608
reishi mushroom for, 3:1903
safflower for, 4:1966
Coronary thrombosis. *See* Heart attacks
Coronavirus infections. *See* Common cold
Corpus callosotomy, for epilepsy, 2:779
Cortex cinnamomi. *See* Cinnamon bark

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Cortex meliae radicis, for worms, 4:2393
Corticosteroids
acne, 1:9
allergies, 1:55
ankylosing spondylitis, 1:97
bronchitis, 1:340
bursitis, 1:365
canker sores, 1:399
colitis, 1:571
eczema, 2:744
gout, 2:957
hay fever, 2:999
herniated disks, 2:1057
osteoarthritis, 3:1657
pain, 3:1686
pityriasis rosea, 3:1760
rashes, 3:1882
sunburn, 4:2168
Cortisol, 2:1124–1126; 3:1807
Cortisone
Chinese thoroughwax and, 1:504
itching, 2:1229
tendinitis, 4:2210–2211
tennis elbow, 4:2213
Corydaline, 1:615
Corydalis, 1:**614–615**
pleurisy, 3:1768
stomachaches, 4:2144
toothaches, 4:2247
Corynanthe yohimbe. *See* Yohimbe
Cosmetic, Toiletry, and Fragrance Association, 1:63
Cosmetologists, facial massage and, 2:809, 811
Cosmic radiation, 3:1873, 1874
Costochondritis, bromelain for, 1:338
Costs of health care. *See* Health care costs
Costus. *See* Aucklandia
Cotton, Nephi, 1:626
Cotton root bark, 1:**616–617**
Couch grass, for premenstrual syndrome, 3:1805
Cough, 1:**617–619**
anise for, 1:94
arsenicum album for, 1:144, 145
ashwaganda for, 1:152
with asthma, 1:154–155
black cumin seed extract for, 1:273
borage for, 1:310
bugle weed for, 1:351
cinnamon for, 1:544
coltsfoot for, 1:586
comfrey for, 1:587
with common cold, 1:590
with croup, 1:635
damiana for, 2:653
ephedra for, 2:771
epimedium for, 2:781
eucalyptus for, 2:793, 794
eyebright for, 2:807
fennel for, 2:824
ferrum phosphoricum for, 2:828
feverfew for, 1:537
fritillaria for, 2:869, 870
ginger for, 2:921, 922
grapefruit seed extract for, 2:965
gymnema for, 2:980
Hepar sulphuris for, 2:1035
hibiscus for, 2:1063
homeopathy for, 2:1090
honey for, 3:1427
honeysuckle for, 2:1098
horehound for, 2:1101, 1102
horsetail for, 2:1106
hyssop for, 2:1153
Iceland moss for, 2:1155
ignatia for, 2:1157
iodine for, 2:1204
Jamaican dogwood for, 2:1231
kali bichromium for, 2:1255
ledum for, 3:1325
licorice for, 3:1342
lobelia for, 3:1354, 1355
lomatium for, 3:1357
lycium fruit for, 3:1376
lycopodium for, 3:1380, 1381
lycopus for, 3:1383
magnolia for, 3:1410
marsh mallow for, 3:1435
mullein for, 3:1536, 1537
natrum muriaticum for, 3:1569
nettle for, 3:1592
nux vomica for, 3:1617
ophiopogon for, 3:1637, 1638
oregano for, 3:1639
osha for, 3:1652, 1653
ox-eye daisy for, 1:536
parsley for, 3:1712
pennyroyal for, 3:1726
peppermint for, 3:1730–1731
pinellia for, 3:1757, 1758
plantain for, 3:1764
pulsatilla for, 3:1852, 1853
raspberry for, 3:1884
red cedar for, 3:1889
red clover for, 3:1891
rhus toxicodendron for, 3:1937
schisandra for, 4:1989
smoking and, 4:2092
steam inhalation for, 2:1122
sulfur for, 4:2162, 2163
tangerine peel for, 4:2195
thyme for, 4:2237
usnea for, 4:2298
wild cherry for, 1:475
yerba santa for, 4:2407, 2408
yohimbe for, 4:2415
See also Antitussives; Expectorants
Cough suppressants. *See* Antitussives
Cough wort. *See* Coltsfoot
Coumarins, 1:88; 4:2175
Council for Homeopathic Certification, 1:433; 2:1088, 1092, 1096
Council for Scientific and Industrial Research (CSIR), 2:1099
Council Grove Conference of 1969, 1:243
Council of Better Business Bureaus, 3:1685
Council of Europe, 1:320
Council on Chiropractic Education, 4:2122
Council on Homeopathic Education, 2:1088, 1092, 1096
Counseling, 3:1846
See also Psychotherapy
Counterstrain (osteopathy), 3:1660
Cousins, Norman, 2:1116
Cow grass. *See* Red clover
Cows
bromelain for, 1:338
colostrum from, 1:583, 585
Coxsackie virus, sore throat and, 4:2105
CPAP (continuous positive airway pressure), 4:2081, 2086, 2098
CPR (cardiopulmonary resuscitation), for heart attacks, 2:1012
Crab apple
as flower remedy, 1:199; 2:850*t*, 851
in Rescue Remedy, 3:1909
for stomachaches, 4:2143
Crab lice. *See* Pubic lice
Cradle cap, 1:**619–621,** *620*
Cramp bark, 1:*621*, **621–623**
childbirth, 1:276
endometriosis, 2:760
hay fever, 1:55
inflammatory bowel disease, 2:1184
low back pain, 3:1365
menstruation disorders, 3:1482
migraine, 3:1500
premenstrual syndrome, 3:1805
rheumatoid arthritis, 3:1926
stomachaches, 4:2143
wheezing, 4:2372
Cramps. *See* Dysmenorrhea; Muscle spasms and cramps
Cranberry, 1:**623–626**
chlamydia, 1:514
epididymitis, 2:774
kidney infections, 2:1273
kidney stones, 2:1277–1278
UTIs, 1:284, 624–625
worms, 4:2393
Cranial manipulation. *See* Craniosacral therapy
Cranial movement therapy. *See* Craniosacral therapy
Craniosacral rhythm (CSR), 1:627, 628

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Craniosacral therapy, 1:**626–628;** 3:1660
autism, 1:190, 627
cerebral palsy, 1:443, 627
chronic fatigue syndrome, 1:533, 627
ear infections, 2:733
hearing loss, 2:1009
hypercortisolemia, 2:1125
past life therapy and, 3:1717
Craniosacral Therapy Educational Trust, 1:628
Crataegus species. *See* Hawthorn
Craving (substance abuse), 4:2158, 2160, 2162
Cr'eachtach. *See* Lysimachia
Creams and lotions
cellulite, 1:439
psoriasis, 3:1837
Rescue Remedy, 3:1909
scabies, 4:1982
sunburn, 4:2168
Creatine, 1:**628–630**
athletes, 1:74–75, 628, 629–630
Lou Gehrig's disease, 1:629; 3:1361
Creative arts therapy. *See* Art therapy
Creeping Charlie/Jenny/John. *See* Lysimachia
Creeping Jenny. *See* Lysimachia
Creeping thyme. *See* Thyme
Creighton University, 2:891
Cretan diet, 3:1453, 1454
Cretinism, 2:1148, 1205
Crile, George, Jr., 2:1136
Crinnion, Walter, 3:1488
Crisis intervention, 3:1848
Crislip, Mark, 2:1046
Critical burns, defined, 1:361
See also Burns
Critical Care Medicine, 2:883
Crocus sativa. See Saffron
Crohn's disease, 1:*631,* **631–634**
acidophilus for, 3:1305
arsenicum album for, 1:144
vs. colitis, 1:569
glucosamine for, 2:936
as inflammatory bowel disease, 2:1183, 1184
lipase for, 3:1350
lysimachia for, 3:1390
manganese for, 3:1422
marsh mallow for, 3:1435
omega-3 fatty acids for, 3:1631–1632
peppermint for, 3:1729
Rosen method for, 3:1953
Saccharomyces boulardii for, 4:1963
slippery elm for, 4:2088
turmeric for, 1:642
vitamin B12 for, 4:2336
Cromolyn sodium
allergies, 1:56, 57
asthma, 1:157
common cold, 1:592
hay fever, 2:999
Cross Currents: The Promise of Electromedicine; The Perils of Electropollution (Becker), 1:15
Cross-linking theory of aging, 1:29
Croton tiglium, 1:55, 602
Croup, 1:**635–636**
anise for, 1:94
Hepar sulphuris for, 2:1035
horehound for, 2:1102
ignatia for, 2:1157
Crown chakra, 1:453
CRP (C-reactive protein) measurement, 1:105; 2:1069–1071; 3:1778
Crush wounds, 4:2398
See also Wounds
Cryotherapy
ingrown nails, 2:1191
Kaposi's sarcoma, 2:1258, 1259
prostate cancer, 3:1828
retinal detachment, 3:1916
skin cancer, 4:2074
warts, 4:2364
Cryptosporidium infections, 3:1704, 1705
Cryptotympana species. *See* Cicada
Cryptoxanthin, 1:405
Crystal healing, 1:**637–638**
Cs-4. *See* Cordyceps
CSA Recognition Seal Program, 2:943
CSIR (Council for Scientific and Industrial Research), 2:1099
CSM (Committee of Safety of Medicines), 2:1261
CSR (craniosacral rhythm), 1:627, 628
CT scans. *See* Computed tomography scans
Cucurbita pepo, for worms, 4:2393
Cue-controlled relaxation, 3:1905–1906
Culinary uses
arrowroot, 1:142, 143
bitter melon, 1:264
borage, 1:311
burdock, 1:360
calendula, 1:382
chicory, 1:482
coix, 1:557, 559
comfrey, 1:588
dandelion, 2:659
fennel, 2:824
fenugreek, 2:825
grains-of-paradise, 2:959
Iceland moss, 2:1155
mangosteen, 3:1425
marsh mallow, 3:1434
nutmeg, 3:1610–1611
prickly pear cactus, 3:1811, 1812
sheep sorrel, 4:2042
shepherd's purse, 4:2044
shiitake mushroom, 4:2049, 2050
turmeric, 4:2279, 2280
wasabi, 4:2365–2366
yellow dock, 4:2407
See also Flavorings
Cullen's sign, 3:1693
Culms, 1:203
Culpeper, Nicholas
barberry, 1:202–203
calendula, 1:382
chickweed, 1:479, 480
comfrey, 1:587
fennel, 2:824
feverfew, 2:833
herbal medicine, 2:1049–1050
horsetail, 2:1106
milk thistle, 3:1502
nettl, 3:1592
parsley, 3:1711
rosemary, 3:1950
sage, 4:1970
Culture tests. *See* Cell culture tests
Culturelle, 3:1819
Cumin
anemia, 1:85
stomachaches, 4:2143, 2144
vomiting, 4:2359
Cupping, 1:*638,* **638–639**
acupuncture, 1:18
bronchitis, 1:340
chronic fatigue syndrome, 1:533
neck pain, 3:1586
osteoarthritis, 3:1656
pinched nerves, 3:1754
rashes, 3:1882
sports massage, 4:2126
stomachaches, 4:2144
Swedish massage, 4:2173
Cupressus sempervirens. See Cypress
Cuprum
stomachaches, 4:2144
whooping cough, 4:2379
Curanderismo, 1:**639–641;** 3:1793
Curanderos/curanderas, 1:640, 641
Curcuma longa. See Turmeric
Curcumin, 1:**641–644**
cancer prevention, 4:2280
for pain, 3:1684
See also Turmeric
The Cure Is in the Cupboard (Ingram), 3:1639
Curie (radiation unit), 3:1872
Current Opinion on Gastroenterology, 2:722
Cuscuta, 1:*644,* **644–647;** 4:2033
Cushing's syndrome, 2:1124–1125
Cut weed. *See* Bladderwrack

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Cutaneous field stimulation, for itching, 2:1229
Cuts and scratches, 1:**647–649;** 4:2398
catnip for, 1:419
coptis for, 1:607
evening primrose oil for, 2:800
French green clay for, 2:867
garlic for, 2:896
grape seed extract for, 2:962
grapefruit seed extract for, 2:966
Hepar sulphuris for, 2:1035
homeopathy for, 2:1090
honeysuckle for, 2:1098
iodine for, 2:1204
jojoba oil for, 2:1242
ledum for, 3:1324
lomatium for, 3:1357
marsh mallow for, 3:1435
osha for, 3:1653
plantain for, 3:1764
prickly pear cactus for, 3:1811, 1812–1813
tea tree oil for, 4:2198
thyme for, 4:2236
turmeric for, 1:642
witch hazel for, 4:2389
yarrow, 4:2401
yellow dock for, 4:2406
See also Wounds
Cuttlefish, sepia from, 4:2026, *2027*
Cutweed. *See* Kelp
CV12 pressure point, 1:14
CVAs (cerebral vascular accidents). *See* Strokes
Cyanide, from amygdalin, 1:129–130
Cyanobacteria. *See* Spirulina
Cyanocobalamin. *See* Vitamin B12
Cyclamen europaeum, for anemia, 2:1216
Cyclic adenosine monophosphate (cAMP), forskolin and, 1:565–566
Cyclic GMP, impotence and, 2:1165
Cyclic vomiting syndrome, 4:2357
Cyclizine, for motion sickness, 3:1521
Cyclobenzaprine, for chronic fatigue syndrome, 1:534
Cyclosporiasis, from raspberry, 3:1884
Cyclosporine, 2:1253; 3:1838
Cyclothymia, 1:255
Cydonia oblonga, for irritable bowel syndrome, 2:1220
Cyma 1000 (device), 1:650
Cymatherapy (organization), 1:649, 650
Cymatic therapy, 1:**649–650;** 4:2107
Cymatics: A Study of Wave Phenomena & Vibration (Jenny), 1:649
Cymbopogon citratus. See Lemongrass
Cymbopogon martinii, for worms, 4:2393
Cynara (mythological figure), 1:148
Cynara scolymus. See Artichoke
Cyperus, 1:*651,* **651–652,** *652;* 2:838; 3:1768
Cypress
bedwetting, 1:213
juvenile rheumatoid arthritis, 2:1253
menstruation disorders, 3:1483
rheumatic fever, 3:1922
varicose veins, 4:2317
Cypripedium calceolus. See Lady's slipper
Cysteine
as antioxidant, 1:111
cataracts, 1:417
gastritis, 2:902
heavy metal poisoning, 2:1027
juvenile rheumatoid arthritis, 2:1253
lead poisoning, 3:1318
radiation injuries, 3:1876
retinopathy, 3:1919
Cystic fibrosis
choline for, 1:522
glutathione for, 2:940
linoleic acid for, 3:1348
lipase for, 3:1350
medium-chain triglycerides for, 3:1457
Cystic Fibrosis Foundation, 2:940
Cysticercosis, 3:1703
Cystine kidney stones, 2:1277, 1278
Cystinuria, betaine hydrochloride for, 1:234
Cystitis, defined, 1:283
See also Bladder infections
Cystoid macular degeneration, 3:1400
See also Macular degeneration
Cystoscopy
bladder cancer, 1:280
interstitial cystitis, 2:1202
Cystourethrograms, 1:284
Cysts
acne, 1:6–7
breast, 2:837
knee pain and, 2:1282
ovarian, 3:1673–1678, *1674*
pinellia for, 3:1758
silica for, 4:2067
Cytochrome P450, ipriflavone and, 2:1211
Cytokines
chronic disease and, 1:105
in colostrum, 1:583, 584
psychoneuroimmunology and, 3:1840
worms and, 4:2393
Cytoreductive surgery, 1:391
Cytos Biotechnology AG, 4:2094
Cytostatic agents, dandruff and, 2:661
Cytotec (misoprostol), for peptic ulcers, 4:2286, 2287
Cytotoxic tests, 2:678, 766

D

D and C (dilatation and curettage), 1:329
D-arginine. *See* Arginine
D-carnitine. *See* Carnitine
Da huang. *See* Rhubarb root
Daidzein
for hot flashes, 2:1109
in kudzu, 2:1291, 1292
natural hormone replacement therapy and, 3:1573
in soy protein, 4:2115
Daily Spiritual Experience Scale (DSES), 3:1795
Daily values (DVs)
beta carotene, 1:228–229
potassium, 3:1788
See also Recommended daily allowances (RDAs)
Dairy products
calcium in, 1:378*t,* 379
colic and, 1:569
in Mediterranean diet, 3:1455
probiotics in, 3:1819
veganism and, 4:2320
Dallas Morning News, 4:2040
Dalmatian pellitory, 1:535, 536, 537
Damiana, 2:**653–654,** *654*
binge eating disorder, 1:241
bipolar disorder, 1:257
fatigue, 2:*815,* 816
postpartum depression, 3:1781
Dan shen. *See* Sage
Dan Zhu Ye, for prickly heat, 3:1809
Dana-Farber Cancer Institute, 3:1378
Dance of the Deer Foundation, 4:2037
Dance therapy, 2:*655,* **655–658**
anxiety, 1:115
as movement therapy, 3:1524–1525
panic disorders, 3:1698
phobias, 3:1743
post-traumatic stress disorder, 3:1785
stress, 4:2151
Dancing mushroom. *See* Maitake
Dandelion, 2:**658–660**
acne, 1:7
anemia, 1:85
as bitter, 1:267
constipation, 1:599
eczema, 2:674
edema, 2:746

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

endometriosis, 2:760
gallstones, 2:880
hangovers, 2:988
insulin resistance, 2:1200
iron in, 2:1216
irritable bowel syndrome, 2:1220
menstruation disorders, 3:1482
night blindness, 3:1603
ovarian cancer, 3:1671
ovarian cysts, 3:1676
peptic ulcers, 4:2286
premenstrual syndrome, 3:1805
psoriasis, 3:1837
retinopathy, 3:1919
stevia for, 4:2138
stomachaches, 4:2143
warts, 4:2363
weight loss, 3:1624

Dandruff, 2:*660*, **660–662**
eucalyptus for, 2:794
grapefruit seed extract for, 2:966
ledum for, 3:1325
lycopus for, 3:1383
nettle for, 3:1592
rosemary for, 3:1951
selenium for, 4:2009, 2011
sepia for, 4:2028
thuja for, 4:2232

Dang gui. *See* Dong quai

Dang shen. *See* Codonopsis root

mDangs-sgur (Tibetan medicine), 4:2240

Dantrolene, for multiple sclerosis, 2:778

Daoism. *See* Taoism

Darkness, sleep disorders and, 4:2085

DART (Diet and Reinfarction Trial), 3:1631

Daruma wasabi. *See* Wasabi

Darvon (propoxyphene), for osteoarthritis, 3:1657

Dasya bhakti, 1:236

Daucus carota. *See* Wild carrot

Daunorubicin, for Kaposi's sarcoma, 2:1259

David's lily flower, natural hormone replacement therapy and, 3:1573

Davies, Joshua W., 2:1263

Davis, Brent W., 1:422

Davis, Ronald D., 2:725, 727

Davis Dyslexia Association International, 2:727

Dawn simulators, 3:1345, 1346; 4:2007

Daytime sleepiness. *See* Hypersomnia

Dead Sea salts, 2:1121, 1122; 3:*1567;* 4:2101

Deadly nightshade. *See* Belladonna

Death cap mushroom poisoning, milk thistle for, 3:1503

Deaths
alcohol-related incidents, 1:41
bites and stings, 1:259
chickenpox, 1:479
cirrhosis, 1:545, 549
colorectal cancer, 1:579
diabetes, 2:685
diarrhea, 2:695
dietary fat-related, 2:784
emphysema, 2:753
food poisoning, 2:862
gastroenteritis, 2:906
heart attacks, 2:1010, 1013
heart disease, 2:1015
hepatitis, 2:1040
influenza, 2:1186–1187, 1189
lead poisoning, 3:1316
lung cancer, 3:1368
malaria, 3:1414–1415
nuclear reactor accidents, 3:1874
obesity, 3:1622
ovarian cancer, 3:1668
parasitic infections, 3:1702
pennyroyal, 3:1727
pneumonia, 3:1770
prostate cancer, 3:1824–1825
radiation injuries, 3:1873, 1874
rheumatic heart disease, 4:2147
smoking, 4:2091
strokes, 4:2153, 2154–2155, 2156
tetanus, 4:2215
tuberculosis, 4:2273
uterine cancer, 4:2298
whooping cough, 4:2380
See also Mortality rates

Deblocking protein factor, 2:1158, 1160

Debridement, for bedsores, 1:211

Decibel ratings, 2:1007*t*

Decimal (x) scale, homeopathy, 1:118, 346

Decoctions
burdock, 1:360
chamomile, 1:455
cramp bark, 1:623
defined, 1:318
echinacea, 2:739–740
fennel, 2:825
licorice, 3:1342–1343
nettle, 3:1592
parsley, 3:1713
rose hips, 3:1948–1949

Decompensated cirrhosis, 1:547
See also Cirrhosis

Decongestants
allergies, 1:55
children's cold remedy ban and, 2:1045
common cold, 1:592
earaches, 2:737
ephedra in, 2:771
hay fever, 2:999
sinus infections, 4:2070
snoring, 4:2098
See also Congestion

Decubitus ulcers. *See* Bedsores

Deep brain stimulation, for Parkinson's disease, 3:1710–1711

Deep breathing
Buteyko method, 1:367–369
defined, 1:332
See also Breath therapy

Deep organ candidiasis, 4:2403, 2404, 2405

Deep tissue work
bruxism, 1:343–344
Chinese massage, 1:498, 499
overview, 3:1440
pregnancy, 3:1802
temporomandibular joint syndrome, 4:2207

Deep venous thrombosis, 3:1739, 1740–1741

Deer antler, for sexual dysfunction, 4:2033

Deerberry. *See* Squawvine; Wintergreen

DEET insect repellents, 3:1417

Defibrillators, for heart attacks, 2:1012

Degenerative diseases
dysbiosis and, 2:722–723
MSM for, 3:1530
potassium and, 3:1789
root canals and, 2:1077
vegetarianism for, 4:2326
See also Chronic diseases; *specific diseases*

Degenerative joint disease. *See* Osteoarthritis

Degenerative scoliosis, 4:2004
See also Scoliosis

Deglycyrrhizinated licorice (DGL), 2:**662–663**
canker sores, 1:399
diarrhea, 2:697
gastritis, 2:902
heartburn, 2:1023
inflammatory bowel disease, 2:1185
peptic ulcers, 4:2285
tuberculosis, 4:2276

Dehydration
diarrhea, 2:696
food poisoning, 2:858
gastroenteritis, 2:907, 908
morning sickness, 3:1517
muscle cramps, 3:1549

Dehydroepiandrosterone. *See* DHEA

Delayed growth, sickle cell anemia and, 4:2063

Delayed hypersensitivity reactions, 1:53

Delirium, Alzheimer's disease and, 1:66

Delirium tremens (DTs), 1:44

Delivery (obstetrics). *See* Childbirth

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Delta-9-tetrahydrocannabinol. *See* Tetrahydrocannabinol
Delta brain waves, 1:243
Delta Society, 3:1739
Delusions, schizophrenia and, 4:1994
Dementia, 2:**663–667**
  ademetionine for, 3:1493
  with AIDS, 1:35
  horsetail for, 2:1107
  huperzine A for, 1:67, 550
  vegetarianism for, 4:2326
  See also Alzheimer's disease
Dementia paralytica, from neurosyphilis, 4:2182
Demerol, for headaches, 2:1005; 3:1500
Demodex folliculorum, rosacea and, 3:1944
Demopressin, for bedwetting, 1:214
Demulcent herbs
  deglycyrrhizinated licorice, 2:662
  Iceland moss, 2:1155
  kudzu, 2:1291
  licorice, 3:1342
  mullein, 3:1536
  overview, 2:704–705
  red clover, 3:1891
  slippery elm, 4:2088
Demyelination disorders, ademetionine for, 3:1493
  See also specific disorders
Denavir (penciclovir), for cold sores, 1:564
Dengue fever, homeopathy for, 2:1090
Denial
  alcoholism, 1:41
  anorexia nervosa, 1:100
  substance abuse, 4:2161
Denis, Jean-Baptiste, 1:434
Densitometers, 3:1664
Dental abscesses, 1:1; 4:2067
Dental amalgams
  mercury poisoning, 2:1027, 1075, 1078; 3:1488
  toothaches, 4:2247
Dental caries
  cerebral palsy and, 1:444–445
  childhood nutrition and, 1:487
  cyperus for, 1:651
  grapefruit seed extract for, 2:965
  green tea for, 2:968
  peppermint for, 3:1731
  psoralea seeds for, 3:1834
  stevia for, 4:2138
  sugar and, 2:1075, 1076
  toothaches and, 4:2246, 2247
  wasabi for, 4:2366
Dental hygiene. *See* Oral hygiene
Dental plaque
  cyperus for, 1:651
  grapefruit seed extract for, 2:965
  gum diseases and, 2:976
  halitosis and, 2:985
  wasabi for, 4:2366
Dental work, temporomandibular joint syndrome and, 4:2206
Dentistry
  holistic, 2:1075–1079, *1076*
  hypnotherapy and, 2:1141
Deodorants, 1:301
Deodorizers, parsley as, 3:1712
Depakene. *See* Valproate/valproic acid
Depakote (divalproex sodium), for bipolar disorder, 1:258
Department of Agriculture. *See* U.S. Department of Agriculture
Department of Health and Human Services. *See* U.S. Department of Health and Human Services
Dependence (physiology)
  alcohol, 1:40, 41
  caffeine, 1:374
  overview, 4:2158
  smoking, 4:2091, 2092, 2094
  sugar, 1:491
Depomedroxyprogesterone acetate (MPA), for hot flashes, 2:1111
Depot medications, 4:1997
Depression, 2:**667–672,** 668*t*
  ademetionine for, 1:20, 21; 3:1493
  Alzheimer's disease and, 1:66
  apitherapy for, 4:2331
  ashwaganda for, 1:152
  binge eating disorder and, 1:240, 241
  chronic fatigue syndrome and, 1:531, 534
  color therapy for, 1:577
  craniosacral therapy for, 1:627
  damiana for, 2:653
  vs. dementia, 2:665
  DHEA for, 2:683
  feverfew for, 1:536; 2:833
  fish oil for, 2:842
  5-HTP for, 2:844
  folic acid for, 4:2338
  gardenia for, 2:893
  geriatric massage for, 2:917
  ginkgo for, 2:922
  gotu kola for, 2:953
  Gulf War syndrome and, 2:974
  homeopathy for, 2:1086, 1090, 1094
  hypnotherapy for, 2:1142
  inositol for, 2:1192
  Korean ginseng for, 2:928
  lachesis for, 3:1300
  lacto-ovo vegetarianism for, 3:1302
  lemon balm for, 3:1326
  light therapy for, 2:671; 3:1344
  magnetic therapy for, 3:1409
  magnolia for, 3:1410
  massage therapy for, 3:1440, 1441, 1442
  meditation for, 3:1448
  memory loss and, 3:1461, 1463
  mugwort for, 3:1533
  multiple chemical sensitivity and, 3:1539
  neural therapy for, 3:1594
  nutmeg for, 3:1610
  omega-3 fatty acids for, 3:1632
  orthomolecular medicine for, 3:1651
  osteopathy for, 3:1659
  panchakarma for, 3:1689
  pinellia for, 3:1758
  postpartum, 3:1780–1782
  pyridoxine for, 3:1857
  qigong for, 3:1859
  rosemary for, 3:1951
  ruta for, 3:1961
  saffron for, 4:1968
  sepia for, 4:2028
  shiatsu for, 4:2046
  Siberian ginseng for, 2:931
  St. John's wort for, 3:1580; 4:2131, 2132
  stevia for, 4:2138
  t'ai chi for, 4:2194
  tangerine peel for, 4:2196
  thuja for, 4:2232
  traditional African medicine for, 4:2253
  veganism for, 4:2319
  vegetarianism for, 4:2326
  vitamin B12 for, 4:2336, 2338
  vitamin C for, 3:1651
  wild oat for, 4:2385
  wormwood for, 4:2396
  See also Antidepressants
Depressive disorders. *See* Depression
Depressive episodes, in bipolar disorder, 1:256; 2:668
Depuratives. *See* Blood purification
Der grossen Wundartzney (Paracelsus), 1:434
Dermabrasion, for acne, 1:9
Dermatitis, 2:**672–676**
  grapefruit seed extract for, 2:966
  neem for, 3:1588
  oak for, 3:1620
  rhus toxicodendron for, 3:1936
  sulfur for, 4:2162
  See also specific types
Dermatitis herpetiformis
  celiac disease and, 1:429–430
  gluten-free diet for, 2:941–945
Descartes, René, 2:761; 3:1505, 1793
Descending foods (traditional Chinese medicine), 1:503
Desensitization
  Law of Similars and, 2:1085–1086
  for neuralgia, 3:1597
  oral, 1:55

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

for phobias, 3:1743–1744
for post-traumatic stress disorder, 3:1785
systematic, 1:218, 219; 3:1845
See also Immunotherapy
Desert herb/tea. *See* Ephedra
Desert parsley/parsnip. *See* Lomatium
Deslanoside, 2:707
Despondency or despair (Bach flower essences), 1:198–199; 2:852
Desyrel (trazodone), for depression, 2:671
Detoxification, 2:**676–680,** 676*t*
Ayurvedic medicine, 1:194
biological cancer treatment, 1:396
biotherapeutic drainage, 1:252
colonic irrigation, 1:574–576
Diamond diet and, 2:692–693
dysbiosis, 2:723
environmental therapy and, 2:766–767
fasting and, 2:676, 679, 812
Gerson therapy and, 1:395; 2:919, 920
heavy metal poisoning, 2:1027
hot flashes, 2:1110
kombucha for, 2:1290
lead poisoning, 3:1318–1319
mercury poisoning, 3:1489
multiple chemical sensitivity, 3:1540
natural hygiene diet and, 3:1575–1577
neem for, 3:1588
ovarian cancer, 3:1670
ovarian cysts, 3:1676
panchakarma for, 1:194; 3:1689–1690
peripheral neuropathy, 3:1734
psoriasis, 3:1837
psyllium for, 3:1850
sick building syndrome, 4:2059
vegetarianism and, 4:2326
Wigmore diet for, 4:2381, 2382–2383
See also Withdrawal
Detoxification (substance abuse), 4:2161, 2162
Detoxification diets
chemical poisoning, 1:471
heavy metal poisoning, 2:1027
knee pain, 2:1283
overview, 2:678
Devil's cherries/devil's herb. *See* Belladonna
Devil's claw, 2:**680–682,** *681*
gout, 2:957
juvenile rheumatoid arthritis, 2:1253
knee pain, 2:1283
osteoarthritis, 3:1656
rheumatoid arthritis, 3:1926
Devil's flight. *See* St. John's wort
Devil's fuge. *See* Mistletoe
Devil's gut. *See* Cuscuta
Devil's nettle. *See* Yarrow
Devil's shoestring. *See* Plantain
Devil's turnip. *See* Bryonia
DEXA (dual energy x-ray absorptiometry), 2:1130; 3:1664
Dexfenfluramine, 3:1625
Dexpanthenol, for itching, 2:1230
DFA (direct fluorescent antibody) staining, for chlamydia, 1:513
DGL. *See* Deglycyrrhizinated licorice
DHA (docosahexaenoic acid)
in fish oil, 2:841, 842
for night blindness, 3:1603
sources, 2:784
Dharmananda, Subhuti, 4:1969
DHEA (dehydroepiandrosterone), 2:**682–684;** 3:1574
aging, 1:30
AIDS, 1:36
Alzheimer's disease, 1:67
chronic fatigue syndrome, 1:533
colitis, 1:570–571
dementia, 2:665
in HRT, 1:249
leukemia, 3:1334
lung cancer, 3:1371
from Mexican yam, 3:1495
natural hormone replacement therapy and, 3:1571, 1572, 1573
systemic lupus erythematosus, 4:2188
DHT (dihydrotestosterone), 1:25, 26; 2:983, 984
Dhup. *See* Boswellia
Diabetes (journal), 4:2314
Diabetes Care (journal), 1:335, 543; 3:1811
Diabetes mellitus, 2:**684–692,** 685*t*
anemarrhena for, 1:80
apple cider vinegar for, 1:123–124
arka for, 1:133
atherosclerosis and, 1:166
biofeedback for, 3:1507
biotin for, 1:253
bitter melon for, 1:264, 265
brewer's yeast for, 1:335
celiac disease and, 1:429
chills from, 1:495
Chinese yams for, 1:506, 507
chromium and, 1:528–529, 530
cinnamon and, 1:543
cornsilk for, 1:612
cornus for, 1:613
cuscuta for, 1:645
fenugreek for, 2:826
gamma-linolenic acid for, 2:882
gangrene and, 2:885, 886
garlic for, 2:896
Gerson therapy for, 2:919
gestational, 2:686; 3:1857
goldenrod for, 2:947
grape seed extract for, 2:961
grape skin for, 2:964
green tea for, 2:968
gymnema for, 2:689, 980, 981
heart attacks and, 2:1011
heart disease and, 2:1017
high fiber diet for, 2:1067; 3:1613
homeopathy for, 2:1086
hypoglycemia and, 2:1144
insulin resistance and, 2:1198, 1199, 1200
ischemia and, 2:1224
Korean ginseng for, 2:927
lacto-ovo vegetarianism for, 3:1302
low fat diet for, 3:1614
macrobiotic diet for, 3:1397
magnetic therapy for, 3:1409
maitake for, 3:1413
manganese for, 3:1423
neem for, 3:1588
niacin for, 3:1600; 4:2338
noni for, 3:1605, 1606
oligomenorrhea and, 3:1481
omega-3 fatty acids for, 3:1631
ophiopogon for, 3:1637
panchakarma for, 3:1689
pau d'arco for, 3:1720
prickly pear cactus for, 3:1811–1812, 1813
psyllium for, 3:1850
raspberry for, 3:1884
retinal detachment and, 3:1915, 1916
sage for, 4:1971
shiitake mushroom for, 4:2049
stevia for, 4:2138
suma for, 4:2165
traditional Chinese medicine for, 2:1044
triphala for, 4:2272
turmeric for, 1:642; 4:2280
urine therapy for, 4:2295
uva ursi for, 4:2305
vanadium for, 4:2313, 2314
veganism for, 4:2319
vegetarianism for, 4:2326, 2328
vitamin B12 for, 4:2336
vitamin C for, 4:2342
yoga for, 2:993; 4:2409
Zone diet for, 4:2423
Diabetes Prevention Program, 2:690–691, 1199
Diabetic diet, for cholesterol control, 1:520
Diabetic peripheral neuropathy
chromium for, 1:528
gamma-linolenic acid for, 2:882, 884
lysine for, 3:1392
overview, 2:690
pyridoxine for, 3:1857
Diabetic Research Institute, 1:434

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Diabetic retinopathy
Kampo medicine for, 2:1257
oligomeric proanthocyanidins for, 2:963
overview, 3:1917–1918
pine bark extract for, 3:1756
DiagnosTechs, Inc., 2:1110
Diagnostic and Statistical Manual of Mental Disorders (DSM)
ADHD, 1:175
alcoholism, 1:40, 43
anorexia nervosa, 1:98
bipolar disorder, 1:255, 256–257
bulimia nervosa, 1:353
depression, 2:669
post-traumatic stress disorder, 3:1783, 1784–1785
premenstrual dysphoric disorder, 3:1479
schizophrenia, 4:1992, 1994, 1995
sleep disorders, 4:2084
Diagnostic approaches
anthroposophical medicine, 1:103
applied kinesiology, 1:126
Ayurvedic medicine, 1:193–194
Chinese food cures, 1:503
homeopathy, 1:346; 2:1086–1087, 1090–1091
Kirlian photography, 2:1279, 1280
Tibetan medicine, 4:2240
traditional Chinese medicine, 2:1043
Diagnostic imaging
atherosclerosis, 1:166
breast cancer, 1:323–324
cancer, 1:388
epilepsy, 2:777
headaches, 2:1003
herniated disks, 2:1056
indigestion, 2:1169
ischemia, 2:1224–1225
jaundice, 2:1234
kidney infections, 2:1273
kidney stones, 2:1277
leukemia, 3:1333
lung cancer, 3:1369–1370
lymphomas, 3:1420
memory loss, 3:1462
neck pain, 3:1585
osteoarthritis, 3:1655
osteoporosis, 3:1664
ovarian cancer, 3:1669
pancreatitis, 3:1694
parasitic infections, 3:1704
pinched nerves, 3:1753
prostate cancer, 3:1826
radiation injuries and, 3:1873
sinus infections, 4:2069
tinnitus, 4:2242
See also specific types of imaging
Dialysis, for cadmium poisoning, 1:372
Diamond, Harvey, 2:692, 693
Diamond, Marilyn, 2:692
Diamond diet, 2:**692–693**
Dian xue massage. *See* Acupressure
Diaper rash, 2:**693–695,** *694;* 3:1880–1881, 1882
borage for, 1:310
slippery elm for, 4:2088
tea tree oil for, 4:2198
witch hazel for, 4:2389
zinc for, 4:2421
Diaphoretics
bayberry, 1:208
blessed thistle, 1:288
boneset, 1:306, 307; 2:797
catnip, 1:419
for detoxification, 2:676*t*
gravel root, 2:797
horehound, 2:1102
hyssop, 2:1152
kava kava, 2:1260
lemon balm, 3:1326
pennyroyal, 3:1726
peppermint, 3:1731
prince's pine, 3:1814
safflower, 4:1965
thyme, 4:2236, 2237
yarrow, 4:2402
Diaphragmatic hernias. *See* Hiatal hernias
Diaphragms (contraception), 1:486
Diaries. *See* Food diaries; Journal therapy
Diarrhea, 2:**695–699,** 696*t*
acidophilus for, 1:5
activated charcoal for, 1:456, 458
antibiotic-associated, 2:698; 4:1963
arka for, 1:133
arrowroot for, 1:142, 143
arsenicum album for, 1:144
ashwaganda for, 1:152
barberry for, 1:202
black cumin seed extract for, 1:273
boswellia for, 1:314
brewer's yeast for, 1:336
celiac disease and, 1:430
chamomile for, 1:455
Chinese skullcap for, 4:2076, 2077
Chinese yams for, 1:506, 507
cinnamon for, 1:543
codonopsis root for, 1:553
coix for, 1:557
comfrey for, 1:587
coptis for, 1:606
cranberry and, 1:625, 626
cyperus for, 1:651
evodia fruit for, 2:801
ferrum phosphoricum for, 2:828
food poisoning and, 2:858
gardenia for, 2:894
gastroenteritis and, 2:906, 907
gentiana for, 2:916
ginger for, 2:921
goldenrod for, 2:947
gotu kola for, 2:952
honeysuckle for, 2:1098
Iceland moss for, 2:1155
ipecac for, 2:1207
irritable bowel syndrome and, 2:1219
kudzu for, 2:1291
lemongrass for, 3:1329
linoleic acid for, 3:1348
lycopodium for, 3:1380
lysimachia for, 3:1390, 1391
magnolia for, 3:1410
mangosteen for, 3:1425, 1426
manuka honey for, 3:1428
marsh mallow for, 3:1434, 1435
McDougall diet for, 3:1443
mercurius vivus for, 3:1484
mistletoe for, 3:1510, 1511
noni for, 3:1605
nutmeg for, 3:1610, 1611
oak for, 3:1620
passionflower for, 3:1715
peppermint for, 2:704; 3:1729
periwinkle for, 3:1736
probiotics for, 3:1306, 1819
psoralea seeds for, 3:1834
psyllium for, 3:1850
pulsatilla for, 3:1852, 1853
raspberry for, 3:1884
red cedar for, 3:1889
rhubarb for, 3:1934
rosemary for, 3:1951
Saccharomyces boulardii for, 2:698; 4:1963
scallion for, 4:1984
shiatsu for, 4:2046
squawvine for, 4:2129
sulfur for, 4:2162
tangerine peel for, 4:2195
therapeutic touch for, 4:2223
thyme for, 4:2237
turmeric for, 1:641
vitamin E for, 4:2350
wasabi for, 4:2366
witch hazel for, 4:2389, 2390
yerba santa for, 4:2407, 2408
See also Antidiarrheals; Traveler's diarrhea
Diastix diabetes tests, 2:687
Diathermy, 2:*699,* **699–701**
herniated disks, 2:1057
osteoarthritis, 3:1656
temporomandibular joint syndrome, 4:2208
tennis elbow, 4:2212
Diazepam
epilepsy, 2:778
Ménière's disease, 3:1467
multiple sclerosis, 3:1543
Dicentra canadensis. See Corydalis
Dicyclomine, for irritable bowel syndrome, 2:1221
Didin/didthin. *See* Myrrh
Die Da Wan, for knee pain, 2:1283

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Diet, 2:**701–704,** 702*t*
Ayurvedic medicine and, 1:194
body odor and, 1:301
cancer and, 1:386
Cayce systems and, 1:424
cellulite and, 1:438
chemical poisoning and, 1:469
Chinese food cures, 1:501–504
cholesterol sources, 1:519*t*
diaper rash and, 2:695
dizziness and, 2:713
essential fatty acids and, 2:784–785, 786
gallstones from, 2:879
gastrointestinal gas and, 2:899, 899*t*
high sensitivity C-reactive protein test and, 2:1069
holistic dentistry and, 2:1077
holistic medicine and, 2:1080
hypoglycemia and, 2:1145
hypothyroidism and, 2:1149
indigestion and, 2:1168
irritable bowel syndrome and, 2:1219
migraine and, 3:1499
multiple sclerosis and, 3:1542
natural hormone replacement therapy and, 3:1574
potassium sources and, 3:1788
pyridoxine in, 3:1857
rosacea and, 3:1945, 1946
senior nutrition and, 4:2014–2016, 2017
traditional Chinese medicine and, 4:2257
vitamin C sources, 4:2344
See also Diet therapy; Nutrition; *specific diets*

Diet and Reinfarction Trial (DART), 3:1631

Diet for a Small Planet (Lappé), 3:1301

Diet therapy, 2:1008–1009; 3:1370, 1603
ADHD, 1:176
aging, 1:31
Alzheimer's disease, 1:67
amenorrhea, 1:72
anemia, 1:84
ankylosing spondylitis, 1:97
anorexia nervosa, 1:100
asthma, 1:155–156
atherosclerosis, 1:166
autism, 1:190
bipolar disorder, 1:257
blood clots, 1:293
bulimia nervosa, 1:353
burns, 1:362
bursitis, 1:364
cancer, 1:389, 390
cataracts, 1:417
cellulite, 1:438
cerebral palsy, 1:443
cerebral vascular insufficiency, 1:448
cervical dysplasia, 1:451
chills, 1:496
Chinese food cures as, 1:503–504
chlamydia, 1:514
cholesterol control, 1:519–520
chronic fatigue syndrome, 1:532
cirrhosis, 1:547, 548
cold sores, 1:563
colitis, 1:570
constipation, 1:598
cough, 1:618
dandruff, 2:661
dermatitis, 2:674
detoxification and, 2:678
diabetes, 2:688
diarrhea, 2:697
dizziness, 2:713
dysmenorrhea, 2:729
eczema, 2:674
edema, 2:746
endometriosis, 2:759
epilepsy, 2:777–778
fatigue, 2:816
fibromyalgia, 2:839
food poisoning, 2:862
fungal infections, 2:877
gallstones, 2:880
gastritis, 2:902–903
gastroenteritis, 2:907–908
Gulf War syndrome, 2:975
gum diseases, 2:977–978, 979
halitosis, 2:985, 986
hangovers, 2:988
hay fever, 2:998
headaches, 2:1002*t*
heart attacks, 2:1013–1014
heart disease, 2:1015*t*, 1018, 1019
heartburn, 2:1025
hemorrhoids, 2:1033
hiatal hernia, 2:1062
hot flashes, 2:1109–1110, 1112
hypercortisolemia, 2:1125
hyperparathyroidism, 2:1130
hyperthyroidism, 2:1139
hypoglycemia, 2:1146
hypothyroidism, 2:1150
indigestion, 2:1169
infections, 2:1176
infertility, 2:1180
inflammatory bowel disease, 2:1184
insulin resistance, 2:1199–1200
interstitial cystitis, 2:1202
irritable bowel syndrome, 2:1220, 1221
ischemia, 2:1225, 1226
jaundice, 2:1235–1236
juvenile rheumatoid arthritis, 2:1253
kidney infections, 2:1273–1274
knee pain, 2:1283
Kneipp wellness and, 2:1285
laryngitis, 3:1309
lead poisoning, 3:1318–1319
learning disorders, 3:1322
leukemia, 3:1333
Lyme disease, 3:1386
lymphomas, 3:1420
macular degeneration, 3:1402
memory loss, 3:1462–1463
menopause, 3:1474
menstruation disorders, 3:1482
mononucleosis, 3:1514
morning sickness, 3:1517
multiple sclerosis, 3:1543
mumps, 3:1546
muscle cramps, 3:1550
myopia, 3:1557
natural hormone replacement therapy and, 3:1573
nausea, 3:1582, 1583
neuralgia, 3:1596
osteoarthritis, 3:1656
osteoporosis, 3:1665
ovarian cancer, 3:1670–1671, 1672
ovarian cysts, 3:1676
pain, 3:1685
pancreatitis, 3:1694–1695
parasitic infections, 3:1704, 1705
pelvic inflammatory disease, 3:1724
phlebitis, 3:1740
phobias, 3:1743
pleurisy, 3:1768
pneumonia, 3:1772, 1773
with polarity therapy, 3:1774
polycystic ovarian syndrome, 3:1778
premenstrual syndrome, 3:1807
prickly heat, 3:1809
prostate disorders, 1:26
psoriasis, 3:1837
rashes, 3:1882
restless leg syndrome, 3:1912
retinopathy, 3:1919
rheumatoid arthritis, 3:1926
seborrheic dermatitis, 2:674
shin splints, 4:2055
shingles, 4:2053
sickle cell anemia, 4:2064
sore throat, 4:2106
sprains and strains, 4:2128
staphylococcal infections, 4:2137
sties, 4:2141
strep throat, 4:2149
stress, 4:2152
strokes, 4:2157
systemic lupus erythematosus, 4:2188
tinnitus, 4:2242
toxic shock syndrome, 4:2252
trichomoniasis, 4:2268
tuberculosis, 4:2276
uterine cancer, 4:2300
uterine fibroids, 4:2302
UTIs, 1:284
vaginitis, 4:2309, 2310
vomiting, 4:2358–2359
wheezing, 4:2372
whooping cough, 4:2380

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Diet therapy *(continued)*
worms, 4:2393, 2394
See also specific diets
Dietary cholesterol, 1:519*t*
Dietary fat
Atkins diet and, 1:171, 172
childhood nutrition recommendations, 1:490
cholesterol control and, 1:519–520
cirrhosis and, 1:547
essential fatty acids and, 2:784–786
fatigue and, 2:816
health risks, 2:784
heart attacks and, 2:1013–1104
heart disease and, 2:1019
hypoglycemia and, 2:1146
lacto-ovo vegetarianism and, 3:1302
lipase and, 3:1350
macular degeneration and, 3:1402
Mediterranean diet and, 3:1454–1455
medium-chain triglycerides and, 3:1456, 1457, 1458
multiple sclerosis and, 3:1542, 1543
obesity and, 3:1622, 1625
Ornish diet and, 3:1645–1646
ovarian cancer and, 3:1672
Pritikin diet and, 3:1817
prostate cancer and, 3:1828
senior nutrition and, 4:2015–2016
vegetarianism and, 4:2327
vitamin A and, 4:2335
Zone diet and, 4:2423, 2424
Dietary fiber
in brewer's yeast, 1:336
childhood nutrition recommendations, 1:490
constipation and, 1:598, 600
hemorrhoids and, 2:1033
hot flashes and, 2:1110
hypoglycemia and, 2:1147
juice therapy and, 2:1247
overview, 3:1612
senior nutrition and, 4:2017
in wheat germ, 4:2368
zinc and, 4:2421
Dietary Guidelines for Americans
childhood nutrition, 1:494
high fiber diet, 2:1067
sodium, 4:2101
teen nutrition, 4:2203
Dietary reference intakes (DRIs), 2:1066*t*, 1067
See also Recommended daily allowances (RDAs)
Dietary Supplement Health and Education Act of 1994 (DSHEA)
botanical medicine, 1:319
catnip, 1:419
citrus bioflavonoids, 2:1059
digestive enzymes, 2:705
herbal medicine, 2:1052
lycopodium, 3:1382
mesoglycan, 3:1491
milk thistle, 3:1504
red yeast rice extract, 3:1893
saffron, 4:1969
shepherd's purse, 4:2044
stevia, 4:2139
XanGo, 3:1425
Dietary supplements. *See* Nutritional supplements
Dietitians of Canada
osteoporosis, 1:305
veganism, 4:2319
vegetarian food guidelines, 4:2321, 2327, 2328
Digestion
bitters for, 1:267
black cumin seed extract for, 1:272
boneset for, 2:797
cayenne for, 1:427, 428
Chinese yams for, 1:506
chymotrypsin for, 1:538–540
cinnamon for, 1:543
coix for, 1:557
damiana for, 2:653
devil's claw for, 2:680
digestive enzymes and, 2:704–706
enzyme therapy and, 2:768
fennel for, 2:824
field mint for, 4:2117
fructooligosaccharides for, 2:874
garlic for, 2:896
gentiana for, 2:916
ginger for, 2:921, 922
gymnema for, 2:980
hops for, 2:1100, 1101
horehound for, 2:1102
hyssop for, 2:1152
kelp for, 2:1269
kola nuts for, 2:1287
lemon balm for, 3:1326, 1327
mistletoe for, 3:1510
mugwort for, 3:1533
peppermint for, 3:1729–1730, 1732
rosemary for, 3:1951
saffron for, 4:1967
scallion for, 4:1984
thuja for, 4:2231
triphala for, 4:2272
turmeric for, 1:641
wormwood for, 4:2395
Digestive enzymes, 2:**704–706**
cancer, 2:768
cirrhosis, 1:547
detoxification, 2:679
ginger and, 2:921
indigestion, 2:1169
jaundice, 2:1236
Kelley-Gonzalez diet and, 2:1266, 1267
leukemia, 3:1334
lung cancer, 3:1371
Lyme disease, 3:1386
overview, 1:537–538
pancreatitis and, 3:1692, 1693, 1695
See also specific enzymes
Digestive system
applied kinesiology and, 1:126
atractylodes for, 1:173, 174
autism and, 1:190
bacteria in, 3:1305
fructooligosaccharides for, 2:874
triphala for, 4:2272
Digestive system diseases
American ginseng for, 2:924
aucklandia for, 1:178
betaine hydrochloride for, 1:233–235
black cumin seed extract for, 1:272
borage for, 1:310
bryonia for, 1:345
calendula for, 1:382
cat's claw for, 1:422
chickweed for, 1:480
cinnamon for, 1:543
codonopsis root for, 1:553
coptis for, 1:606–607
cyperus for, 1:651
enzyme therapy for, 2:768
evodia fruit for, 2:801, 802
fenugreek for, 2:826–827
French green clay for, 2:867
gardenia for, 2:893–894
garlic for, 2:896
gentiana for, 2:916
goldenseal for, 2:948
horsetail for, 2:1107
hyssop for, 2:1152
Iceland moss for, 2:1155
juniper for, 2:1249, 1250
Korean ginseng for, 2:928
lycopodium for, 3:1380
massage therapy for, 3:1440
MSM for, 3:1530
natrum muriaticum for, 3:1568
noni for, 3:1605
nux vomica for, 3:1616, 1617
ophiopogon for, 3:1638
panchakarma for, 3:1689
pancreatitis and, 3:1694
pennyroyal for, 3:1726
peppermint for, 3:1729–1730
plantain for, 3:1764
prickly pear cactus for, 3:1811, 1812
pulsatilla for, 3:1852, 1853
sheep sorrel for, 4:2042
spearmint for, 4:2118–2119
stevia for, 4:2138
tangerine peel for, 4:2195, 2196
therapeutic touch for, 4:2224
thyme for, 4:2237
Tibetan medicine for, 4:2239
turmeric for, 1:642
veganism for, 4:2319
vomiting and, 4:2357
white peony root for, 4:2374
Wigmore diet for, 4:2382
yellow dock for, 4:2406
See also specific diseases

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Digestive ulcers. *See* Peptic ulcers
Digibind, 1:473
Digital infrared imaging. *See* Thermography
Digital rectal examinations
colorectal cancer, 1:579, 582
prostate cancer, 3:1826
prostate enlargement, 3:1830–1831
Digitalis, 2:*706*, **706–708,** 746
Digitoxin, 2:707
Digoxin, 1:473; 2:707, 746
Dihydroergotamine, 2:1005; 3:1500
Dihydrotestosterone (DHT), 1:25, 26; 2:983, 984
Diindolylmethane (DIM), for cervical dysplasia, 1:451
Dilantin (phenytoin), 2:778; 3:1550
Dilatation and curettage (D and C), 1:329
Dill, for colic, 1:568
Dilution of homeopathic remedies, 2:1086, 1087, 1089, 1091, 1093
See also Law of Infinitesimals
DIM (diindolylmethane), for cervical dysplasia, 1:451
Dimenhydrinate, for motion sickness, 3:1521, 1583
Dimercaprol chelation therapy
cadmium poisoning, 1:372
heavy metal poisoning, 2:1027
lead poisoning, 3:1319
Dimethyl sulfoxide (DMSO), for interstitial cystitis, 2:1202
Dimethylglycine (DMG), for autism, 1:190
Dimethylmercury compounds, 3:1488
Dimethylsulfone. *See* MSM
Dimick, Keene, 3:1650
Dinshah, Jay, 4:2319
Dioscorea opposita. *See* Chinese yam
Dioscorea villosa. *See* Mexican yam; Wild yam
Dioscorides, Pedanius
aloe, 1:60
aromatherapy, 1:137
black walnut, 1:279
borage, 1:309
botanical medicine, 1:316
chasteberry, 1:459
Chinese yams, 1:506
colchicum, 1:560
herbal medicine, 2:1048
honey, 3:1427
khella, 2:1270
licorice, 2:662
marijuana, 3:1431
marsh mallow, 3:1434
rhodiola rosea, 3:1930
white willow, 4:2375
Diosmin, 2:1059
Dioxin, 2:759; 3:1481
Diphencyprone (DPC), 2:984; 4:2364
Diphenhydramine
motion sickness, 3:1521, 1583
Parkinson's disease, 3:1709
Diphenol hydroxybenzene complex, in grapefruit seed extract, 2:966
Diphtheria, 2:948; 3:1748
Diphtheria, pertussis and tetanus (DPT) vaccine, 1:191; 4:2216, 2380
Diphtheria, tetanus, and acellular pertussis (DTaP) vaccine, 4:2380
Diphtheria and tetanus (Td) booster vaccine, 4:2216
Diplegia, defined, 1:442
Diplococcus pneumoniae. *See Streptococcus pneumoniae*
Dipstick diabetes tests, 2:687
Direct cholangiography, 2:881
Direct fluorescent antibody (DFA) staining, for chlamydia, 1:513
Direction of energy (craniosacral therapy), 1:627
Disabilities
cerebral palsy as, 1:444, 445
Feldenkrais method for, 2:819
multiple sclerosis and, 3:1542–1543
schizophrenia as, 4:1992–1993
Disaster management
post-traumatic stress disorder, 3:1786
radiation injuries, 3:1874
Discectomy, 2:1057
Discoveries in the Field of Natural Science and Medicine: Instruction in the Study of Diagnosis from the Eye (von Peczely), 2:1212
Discri, George, 1:252
Disease
anthroposophical medicine view, 1:103
anxiety from, 1:114
Ayurvedic medicine view, 1:151, 192–193; 3:1689
Buteyko method and, 1:368
childhood nutrition and, 1:487, 489
Christian Science healing view, 1:527
cytokine theory and, 1:105
homeopathic view, 1:118; 2:1086, 1087, 1090, 1091, 1094
memory loss and, 3:1461
naturopathic medicine view, 3:1578, 1579
orthomolecular medicine view, 3:1651
shamanism and, 4:2036
TCM view, 1:13–14, 17–18
See also Chronic diseases; *specific diseases*
Disease-modifying drugs
osteoarthritis, 3:1657
rheumatoid arthritis, 3:1927
Diseases of the Colon and Rectum (journal), 4:2019
Disk herniation. *See* Herniated disks
Dislocations, homeopathy for, 2:1090
Disorders of written expression, 3:1321, 1322
Disorganized schizophrenia, 4:1992, 1994
Dispersing acupressure technique, 1:14
Dissociative amnesia, 3:1462
Dissociative symptoms of schizophrenia, 4:1994
Distichons, 1:203
Distillation, of essential oils, 2:788
Disulfiram
for alcoholism, 1:45
vs. daidzein, 2:1292
Rescue Remedy and, 3:1910
Disulfiram-like mushroom poisoning, 2:861
Diuretics
alisma, 1:52
astralagus, 1:164
atractylodes, 1:173
boneset, 2:797
buchu, 1:347
chelidonium, 1:466
chickweed, 1:480
chicory, 1:481
coix, 1:557
cornsilk, 1:611
corydalis, 1:615
dandelion, 2:659
for detoxification, 2:676*t*
for edema, 2:746
eucommia bark, 2:795
goldenrod, 2:946, 947
goldenseal, 2:948
honeysuckle, 2:1098
horehound, 2:1102
horse chestnut, 2:1105
horsetail, 2:1106
for hypertension, 2:1134
juniper, 2:1249
kava kava, 2:1260, 1261
khella, 2:1271
for kidney stones, 2:1278
kola nuts, 2:1287
lycopus, 3:1383
mullein, 3:1536
nettle, 3:1591
oak, 3:1620
ophiopogon, 3:1638
ox-eye daisy, 1:536
plantain, 3:1764
potassium and, 1:463; 3:1789, 1790
prince's pine, 3:1814
psoralea seeds, 3:1834
sage, 4:1970
sargassum seaweed, 4:1975, 1976
slippery elm, 4:2088
for strokes, 4:2157

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Diuretics *(continued)*
tangerine peel, 4:2196
thuja, 4:2231, 2232
thyme, 4:2236
uva ursi, 4:2305
weight loss, 3:1624
wintergreen, 4:2387
Divale. *See* Belladonna
Divalproex sodium, for bipolar disorder, 1:258
Divaricate saposhnikovia root, for tetanus, 4:2216
Diverticula, 2:708–709
Diverticulitis, 2:**708–711**
acidophilus for, 3:1305
peppermint for, 3:1729
vegetarianism for, 4:2326
Diverticulosis, defined, 2:708
See also Diverticulitis
Divine Husbandman's Classic of Materia Medica, 3:1934
Divine sage. *See* Sage
Diviners, in traditional African medicine, 4:2253, 2254
Divining rods, 3:1877–1888
Dizziness, 2:**711–714**
chrysanthemum for, 1:535
cornus for, 1:613
gardenia for, 2:893
gastrodia for, 2:904, 905
gentiana for, 2:916
lavender for, 3:1311
lycium fruit for, 3:1376
Ménière's disease and, 3:1465, 1466
neural therapy for, 3:1594
osteopathy for, 3:1658
scallion for, 4:1984
sesame oil for, 4:2029
DL-carnitine. *See* Carnitine
DMG (dimethylglycine), for autism, 1:190
DMSA (dimercaptosuccinic acid). *See* Dimercaprol chelation therapy
DMSO (dimethyol sulfoxide), for interstitial cystitis, 2:1202; 3:1530
DMSO2 (dimethylsulfone). *See* MSM
DNA probe testing. *See* Nucleic acid amplification testing
Docosahexaenoic acid. *See* DHA
Doctrine of Signatures
black walnut, 1:278
blue cohosh, 1:298
Culpeper, Nicholas and, 2:1049–1050
DoD (U.S. Department of Defense), 2:974, 975
Dodder of thyme. *See* Cuscuta
Dodoens, Rembert, 2:1049
Dog daisy. *See* Yarrow
Dog eared sorrel. *See* Sheep sorrel
Dog rose. *See* Rose hips
Dog rowan tree. *See* Cramp bark
mDog-sel (Tibetan medicine), 4:2240
Dogwood, 1:613
Dolomieu, Deodat de, 2:715
Dolomite, 2:*715,* **715–717**
Domeboro, for eczema, 2:742
Donepezil, for Alzheimer's disease, 2:666
Dong Chong Xia Caoor. *See* Cordyceps
Dong gua ren cao, 1:77
Dong quai, 2:**717–720**
amenorrhea, 1:72
anemia, 1:85
dysmenorrhea, 2:719, 729
endometriosis, 2:760
hot flashes, 2:1109
infertility, 2:1180
iron in, 2:1216
menstruation disorders, 3:1482
obsessive-compulsive disorder, 3:1629
ovarian cancer, 3:1671
ovarian cysts, 3:1676
overview, 1:87–88
premenstrual syndrome, 3:1805
Raynaud's syndrome, 3:1887
vaginitis, 1:179
Dong zhu. *See* Atractylodes
Donkey's ears. *See* Mullein
Doonheadclock. *See* Dandelion
Dooryard plantain. *See* Plantain
Dopamine
chasteberry, 1:461
dyslexia, 2:725
Parkinson's disease, 3:1706
schizophrenia, 4:1993
Dopamine agonists, for Parkinson's disease, 3:1709
Dopamine antagonists, for schizophrenia, 4:1997–1998
Dorsal root entry zone (DREZ), 3:1597
Doshas, 1:*192*
overview, 1:192–193, 193*t*
panchakarma, 3:1689
tastes, 1:194–195
Dossey, Larry, 3:1795
Double-contrast barium enemas, 1:580, 582, 632
Double depression, 2:669
Doubleday, Henry, 1:588
Douches
chamomile, 1:455
oak, 3:1620
overview, 2:1121, 1122–1123
for trichomoniasis, 4:2268
for vaginitis, 4:2309, 2310
vulvovaginal candidiasis and, 4:2404, 2405
Dovonex (calcipotriene), for psoriasis, 3:1837
Down syndrome, memory loss and, 3:1462
Downward drift, schizophrenia and, 4:1995
Dowsing, 3:1877–1888
Dowsing rods, 3:1877–1888
Doxorubicin, 1:556; 2:1259
Doxycycline, 1:514; 4:2184
DPC (diphencyprone), 2:984; 4:2364
DPP. *See* Diabetes Prevention Program
DPT. *See* Diphtheria, pertussis and tetanus (DPT) vaccine
Dr. Atkins' Diet Revolution (Atkins), 1:169
Dr. Atkins' New Diet Revolution (Atkins), 1:169
Dr. Dean Ornish's Program for Reversing Heart Disease (Ornish), 2:993; 3:1647
Dr. Duke's Essential Herbs (Duke), 2:996
Dr. Edward Bach Foundation, 2:853
Dr. Huang's Internal Injury Poultice, 4:2196
Dr. Sun's soup, 4:2169–2171
Dragon bones, for sleep disorders, 4:2085
Drainage, biotherapeutic, 1:252
Drains, for abscesses, 1:2
Draksha, for stomachaches, 4:2145
Dramamine. *See* Diphenhydramine
Drawing tests (psychology), 1:145
Dream pillows, for insomnia, 2:1196; 4:2076
Dreams, past life therapy and, 3:1717
Dressing, of wounds, 4:2399
DREZ (dorsal root entry zone), 3:1597
Drinking (alcohol). *See* Alcoholic beverages
Drinking water
anti-inflammatory diet, 1:107
color therapy, 1:577
lead poisoning, 3:1317
Wigmore diet, 4:2382
Dronabinol, for glaucoma, 2:934
Drooling, teething and, 4:2204, 2205
Dropsy. *See* Edema
Drosera rotundifolia, 1:619; 4:2379
Drotrecogin alfa, 1:295
Drown, Ruth, 3:1879
Drug abuse. *See* Substance abuse and dependence
Drug Development Research (journal), 3:1866
Drug Discovery & Development, 2:961
Drug-induced hypoglycemia, 2:1144, 1145, 1146
See also Hypoglycemia
Drug-induced lupus, 4:2187

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Drug resistance
boils, 1:303
ear infections, 2:734
gonorrhea, 2:951
malaria, 3:1417
meningitis, 3:1472
MRSA, 2:1175
staphylococcal infections, 4:2135
swimmer's ear, 4:2176, 2177–2178
trichomoniasis, 4:2268
tuberculosis, 4:2277
whooping cough, 4:2380

Drugs
acne, 1:8–9
allergies, 1:55–56
Alzheimer's disease, 1:69
angina, 1:91–92
anorexia nervosa, 1:101
anxiety and, 1:114, 116
asthma, 1:157–158
autism, 1:190
vs. botanical medicine, 1:316, 319
diabetes, 2:689–690
diarrhea from, 2:696
dizziness from, 2:713
edema from, 2:745
epilepsy, 2:778
fatigue and, 2:815
fetal development and, 3:1800
gastrointestinal gas from, 2:899
heart attacks, 2:1013
hypothyroidism and, 2:1149
impotence and, 2:1164
indigestion and, 2:1168
jaundice and, 2:1233–1234
migraine and, 3:1499
motion sickness, 3:1522
pancreatitis and, 3:1692–1693
plantain as inert agent for, 3:1764
poisoning from, 1:469
Raynaud's syndrome and, 3:1886
restless leg syndrome and, 3:1911, 1912
retinopathy and, 3:1917, 1918, 1919
secondary diabetes and, 2:687
urinary incontinence and, 4:2292
vomiting and, 4:2357
See also Nonprescription drugs; *specific drugs and classes of drugs*

Drugs.com (website), 2:799

Drusen, 3:1402

Dry cough, 1:617

Dry eyes, 4:2071, 2072

Dry gangrene, 2:885

Dry macular degeneration, 3:1400
See also Macular degeneration

Dry mouth, 2:**720–722;** 4:2071, 2072

Dry skin
BHAs and, 1:232
itching and, 2:1228, 1229
Rescue Remedy for, 3:1909

Drying of herbs
arnica, 1:135
chamomile, 1:455
rosemary, 3:1951

DSES (Daily Spiritual Experience Scale), 3:1795

DSHEA. *See* Dietary Supplement Health and Education Act of 1994

DSM. *See Diagnostic and Statistical Manual of Mental Disorders*

DTaP vaccine. *See* Diphtheria, tetanus, and acellular pertussis (DTaP) vaccine

DTs (delirium tremens), 1:44

Du Zhong. *See* Eucommia bark

Dual energy x-ray absorptiometry (DEXA), 2:1130; 3:1664

Dual therapy, for gastritis, 2:903

Dualistic philosophy, medicine and, 2:761; 3:1505, 1793

Duchenne muscular dystrophy, biotin for, 1:253

Duchesne-Duparc, Louis-Victor D., 1:287

Ductal breast cancer, 1:322

Ductograms, 2:837

Duke, James A.
hawthorn, 2:995–996
kudzu, 2:1291
lemongrass, 3:1330
senna, 4:2018
sesame oil, 4:2029
thyme oil, 3:1639

Duke of Chou's Centenarian Liquor, 4:2196

Duke University, 1:566; 3:1795; 4:2074

Duloxetine, for urinary incontinence, 4:2293

Dum (unani-tibbi), 4:2289

Dun daisy. *See* Ox-eye daisy

Dunaliella algae, beta carotene in, 1:226, 405

Duodenal ulcers
deglycyrrhizinated licorice for, 2:662
gastritis and, 2:901, 902
grapefruit seed extract for, 2:966
marsh mallow for, 3:1435
overview, 4:2283, 2284
slippery elm for, 4:2088

Dust, sick building syndrome and, 4:2058

Dutasteride, for prostate enlargement, 3:1832

Dutch honeysuckle. *See* Honeysuckle

Dutch rushes. *See* Horsetail

DVs. *See* Daily values

Dwale. *See* Belladonna

Dwarf elder, 2:748

Dwayberry. *See* Belladonna

Dyana (yoga meditation), 2:992; 4:2409, 2412
See also Meditation

Dyer's chamomile, 1:454–455

Dyer's saffron. *See* Safflower flower

Dyes
dandelion, 2:658
dyer's chamomile, 1:454–455
feverfew, 2:833
nettle, 3:1592
plantain, 3:1764
safflower, 4:1965
turmeric, 4:2279
uva ursi, 4:2305
See also Pigments

Dysbiosis, 2:**722–724**
colonic irrigation for, 1:575–576
probiotics for, 3:1819–1820

Dysentery
Chinese skullcap for, 4:2076
garlic for, 2:895
homeopathy for, 2:1090
honeysuckle for, 2:1098
lycopodium for, 3:1380
lysimachia for, 3:1391
mangosteen for, 3:1425
marsh mallow for, 3:1435
noni for, 3:1605
pau d'arco for, 3:1720
pulsatilla for, 3:1852
schisandra for, 4:1989

Dysfunctional uterine bleeding, 3:1480

Dyskinesias, Parkinson's disease and, 3:1708, 1709

Dyslexia, 2:**724–728,** 725*t*
craniosacral therapy for, 1:627
as learning disorder, 3:1320, 1322

Dyslexia Correction Center, 2:727

Dysmenorrhea, 2:**728–730;** 3:1480, *1805*
black haw for, 1:276
castor oil for, 1:414
chiropractic for, 1:510, 511
corydalis for, 1:615
cramp bark for, 1:622, 623
cyperus for, 1:651
damiana for, 2:653
dong quai for, 2:719, 729
fish oil for, 2:842
hibiscus for, 2:1064
Jamaican dogwood for, 2:1231
kava kava for, 2:1261
lachesis for, 3:1299
lemon balm for, 3:1326–1327
magnolia for, 3:1410
Mexican yam for, 3:1495, 1496
motherwort for, 3:1518
moxibustion for, 3:1528
mugwort for, 3:1533
notoginseng for, 3:1608
osteopathy for, 3:1658
passionflower for, 3:1715

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Dysmenorrhea *(continued)*
peppermint for, 3:1728, 1731
phytolacca for, 3:1748
pulsatilla for, 3:1852, 1854
Rosen method for, 3:1953
safflower for, 4:1965
skullcap for, 4:2075
squawvine for, 4:2129
St. John's wort for, 4:2131
therapeutic touch for, 4:2222
thyme for, 4:2237
trigger point therapy for, 4:2270
uva ursi for, 4:2305
valerian for, 4:2312
vegetarianism for, 4:2326
white willow for, 4:2376
yoga for, 4:2409
Dysmotility-like dyspepsia, 4:2142
See also Indigestion; Stomachaches
Dyspepsia. *See* Indigestion; Stomachaches
Dyssomnias, 4:2083
See also specific types
Dysthymic disorder, 2:668, 669; 3:1449
See also Depression
Dystonic motor impairment, 1:442
Dysuria. *See* Urination, painful

E

E. coli. See Escherichia coli
E Bu Shi Cao, for rhinitis, 3:1929
Ear, inner. *See* Vestibular system
Ear, middle, anatomy of, 2:731
Ear acupuncture. *See* Auriculotherapy
Ear infections, 2:**731–736,** *732*
craniosacral therapy for, 1:627
ferrum phosphoricum for, 2:828
garlic for, 2:896
goldenseal for, 2:948
grapefruit seed extract for, 2:966
hearing loss and, 2:1007, 1009
homeopathy for, 2:1088
naturopathic medicine for, 3:1580
osteopathy for, 3:1658
pulsatilla for, 3:1852
silica for, 4:2067
Ear plugs, hearing loss and, 2:1007, 1009
Ear tubes. *See* Ventilation tubes
Earaches, 2:**736–738**
American ginseng for, 2:924
eucalyptus for, 2:793
eyebright for, 2:807
grapefruit seed extract for, 2:966
Hepar sulphuris for, 2:1035
homeopathy for, 2:1090
hyssop for, 2:1152
lycopodium for, 3:1380
parsley for, 3:1712
peppermint for, 3:1731
plantain for, 3:1764
scallion for, 4:1984
sulfur for, 4:2162
tea tree oil for, 4:2198
Earball cait'in. *See* Lysimachia
Eardrops, 2:733, 736
Early fumitory. *See* Corydalis
Early-onset familial Alzheimer's disease, 3:1462
Earth's magnetic field, 3:1408
East London University, 4:2197
Eastern red cedar. *See* Juniper
Eastern Virginia Medical School, 4:2415
Eating disorders. *See specific eating disorders*
Eau de Noyaux (liqueur), 1:129
Ebers papyrus (Egyptian text)
botanical medicine and, 1:316
castor oil, 1:412
khella, 2:1270
myrrh, 3:1560
Ecchymoses. *See* Bruises
Eccrine sweat glands, 1:300, 301
ECGs. *See* Electrocardiograms
Echimidine, in comfrey, 1:588
Echinacea, 2:**738–741,** *739*
bedsores, 1:211
cervical dysplasia, 1:451; 3:1580
chickenpox, 1:478
chlamydia, 1:514
chronic fatigue syndrome, 1:533
common cold, 1:591, 593
cuts and scratches, 1:648
ear infections, 2:733
emphysema, 2:754
epididymitis, 2:774
gastritis, 2:902
genital herpes, 2:911
gum diseases, 2:978
halitosis, 2:985
hay fever, 1:55
hearing loss, 2:1009
in herbal cold remedies, 2:1046, 1047
impetigo, 2:1163
infections, 2:1176
influenza, 2:1187, 1190
laryngitis, 3:1308
Lyme disease, 3:1386
measles, 3:1446
mononucleosis, 3:1515
mumps, 3:1546
pelvic inflammatory disease, 3:1724
pleurisy, 3:1768
pregnancy, 3:1799
rhinitis, 3:1928
scarlet fever, 4:1987, 1988
shingles, 4:2052
sinus infections, 4:2069
sneezing, 4:2096
staphylococcal infections, 4:2136
sties, 4:2141
strep throat, 4:2148, 2149
tonsillitis, 4:2245
toxic shock syndrome, 4:2252
trichomoniasis, 4:2268
tuberculosis, 4:2276
uterine cancer, 4:2300
vaginitis, 4:2309
Echocardiography, 2:1017, 1224
Eclampsia. *See* Preeclampsia; Toxemia
Eclectic doctors
black cohosh, 1:264
eucalyptus, 2:793
ginger, 2:921
EcoG (electrocochleography), for Ménière's disease, 3:1466
Ecology
global warming and allergies, 2:765
vegetarianism and, 4:2320, 2329
Economic considerations. *See* Health care costs
Ecstasy technique, shamanism and, 4:2036
ECT (electroconvulsive therapy), 1:258; 2:671–672
Ecthyma, 2:1162, 1163
Ectopic pregnancy, pelvic inflammatory disease and, 3:1721, 1723
Eczema, 2:**741–744**
allergies and, 1:53, 55
borage for, 1:310
chelidonium for, 1:467
chickweed for, 1:480
cicada for, 1:541
cnidium seeds for, 1:551
coleus for, 1:565–566
coltsfoot for, 1:586
fenugreek for, 2:826
gamma-linolenic acid for, 2:882
Gerson therapy for, 2:919
goldenseal for, 2:948
gotu kola for, 2:952
grapefruit seed extract for, 2:966
Hepar sulphuris for, 2:1036
horsetail for, 2:1107
juniper for, 2:1250
Kampo medicine for, 2:1257
kelp for, 2:1269
linoleic acid for, 3:1348
lycopodium for, 3:1380
mangosteen for, 3:1425
motherwort for, 3:1519
neem for, 3:1588
phytolacca for, 3:1748
plantain for, 3:1764
probiotics for, 3:1306
psoralea seeds for, 3:1834
red clover for, 3:1891

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Rescue Remedy for, 3:1909
rosemary for, 3:1951
sheep sorrel for, 4:2042
stevia for, 4:2138
sulfur for, 4:2162, 2163
tea tree oil for, 4:2198
thuja for, 4:2231
Tibetan medicine for, 4:2239
traditional African medicine for, 4:2253
traditional Chinese medicine for, 2:1044
urine therapy for, 4:2295
wild oat for, 4:2385
yellow dock for, 4:2406

Eddy, Mary Baker, 1:525–527; 3:1793

Edema, 2:**744–746**
apis for, 1:118
ashwaganda for, 1:152
balm of Gilead for, 1:200
chicory for, 1:481
coix for, 1:557
colchicum for, 1:560
compresses for, 2:1122
cornsilk for, 1:611
feverfew for, 1:536
Gerson therapy for, 2:919
gravel root for, 2:797
gymnema for, 2:980
hawthorn for, 2:995
horse chestnut for, 2:1105
horsetail for, 2:1106
juniper for, 2:1249
kelp for, 2:1269
kola nuts for, 2:1287
motherwort for, 3:1519
oligomeric proanthocyanidins for, 2:963
ophiopogon for, 3:1638
parsley for, 3:1712
pine bark extract for, 3:1756
pregnancy massage for, 3:1802
squawvine for, 4:2129
sweet clover for, 4:2175
tangerine peel for, 4:2196
thunder god vine for, 4:2234
varicose veins and, 4:2316
yellow dock for, 4:2406

EDTA chelation therapy
cadmium poisoning, 1:372
cerebral vascular insufficiency, 1:447, 448
gangrene, 2:886
heavy metal poisoning, 2:1027
ischemia, 2:1225
lead poisoning, 3:1319
mercury poisoning, 3:1489
overview, 1:464–466

Education and training
acupressure, 1:15
acupuncture, 1:19
Alexander technique, 1:47–48, 49
anthroposophical medicine, 1:104
apitherapy, 4:2332
applied kinesiology, 1:128
aromatherapy, 1:141
art therapy, 1:147–148
Aston-Patterning, 1:162–163
Ayurvedic medicine, 1:196
Bach flower remedies, 2:853
Bates method, 1:208
behavioral optometry, 1:217
Breema, 1:334–335
Buteyko method, 1:370
Cayce systems, 1:425
chelation therapy, 1:466
Chinese food cures, 1:504
Chinese massage, 1:500
chiropractic, 1:511; 4:2122
craniosacral therapy, 1:628
curanderismo, 1:641
cymatic therapy, 1:650
dance therapy, 2:657–658
energy medicine, 2:763–764
environmental therapy, 2:767
facial massage, 2:811
Feldenkrais method, 2:820
geriatric massage, 2:918
Gerson therapy, 2:920
hatha yoga, 2:994–995
Hellerwork, 2:1032
herbal medicine, 2:1053
holistic dentistry, 2:1079
holistic medicine, 2:1082
homeopathy, 1:433–434; 2:1088, 1092, 1096
hypnotherapy, 2:1142–1143
infant massage, 2:1173
iridology, 2:1214–1215
journal therapy, 2:1244–1245
Kneipp wellness, 2:1285–1286
lomilomi, 3:1359
lymphatic drainage, 3:1389
martial arts, 3:1438
massage therapy, 3:1442
meditation, 3:1452
mind/body medicine, 3:1508–1509
movement therapy, 3:1527
music therapy, 3:1553
myotherapy, 3:1558–1559; 4:2271
Native American medicine, 3:1567
natural hygiene diet, 3:1577
naturopathic medicine, 1:320; 2:1053; 3:1579, 1581
neural therapy, 3:1595
neurolinguistic programming, 3:1599
nutrition, 1:494–495; 4:2204
ortho-bionomy, 3:1649
orthomolecular medicine, 3:1651
osteopathy, 3:1661–1662; 4:2121–2122
panchakarma, 3:1691
pet therapy, 3:1738, 1739
Pilates, 3:1751
polarity therapy, 3:1775
pranic healing, 3:1792
pregnancy massage, 3:1802
prolotherapy, 3:1824
psychophysiology, 3:1842
psychosomatic medicine, 3:1844
psychotherapy, 3:1849
qigong, 3:1862
quan yin, 3:1864
radionics, 3:1878, 1879
reflexology, 3:1898–1899
reiki, 3:1902
Rolfing, 3:1943
Rosen method, 3:1953
Rubenfeld synergy method, 3:1958
Russian massage, 3:1960
shamanism, 4:2036–2037
shiatsu, 4:2047
shintaido, 4:2057
somatics, 4:2104
sound therapy, 4:2111
spirituality needs, 3:1795
sports massage, 4:2126
stone massage, 4:2146
Swedish massage, 4:2174
syntonic optometry, 4:2179
t'ai chi, 4:2194
TCM, 1:320–321
Tellington touch, 1:184
Thai massage, 4:2219
therapeutic touch, 4:2224–2225
thermography, 4:2227
Tibetan medicine, 4:2240–2241
traditional African medicine, 4:2254
traditional Chinese medicine, 2:1045; 4:2258
Trager psychophysical integration, 4:2260–2261
trigger point therapy, 4:2271
unani-tibbi, 4:2290
Western herbalism, 1:321
yoga, 4:2414
See also Certification and licensing; Patient education; Special education

EECP (enhanced external counterpulsation), 1:92

EEG. *See* Electroencephalography

EFAs. *See* Essential fatty acids

Effects of Alpha Hydroxy Acid on Skin (FDA report), 1:63

Effexor (venlafaxine), for hot flashes, 2:1111

Effleurage
Russian massage, 3:1959
sports massage, 4:2125–2126
Swedish massage, 4:2172–2173

Effort-Shape, 3:1524

Ego (personality), 3:1847

Egyptian history, myrrh and, 3:1560

EIA (enzyme immunoassay testing), for chlamydia, 1:513

Eicosanoids, Zone diet and, 4:2423, 2424

Eicosapentaenoic acid. *See* EPA

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Eight Weeks to Optimum Health (Weil), 3:1509
Einstein, Albert, 4:2324
Eisenberg, David, 3:1506
Ejaculation problems, 1:645; 4:2031
See also Premature ejaculation
Elastin, copper and, 1:603
Elder flower, 2:**746–749,** *747*
chickenpox, 1:478
common cold, 1:591
croup, 1:636
ear infections, 2:733
fever, 2:832; 4:1987
in herbal cold remedies, 2:1046, 1047
influenza, 2:1188, 1190
measles, 3:1446
mononucleosis, 3:1515
rhinitis, 3:1928
stomachaches, 4:2143
wheezing, 4:2372
Elderly
Alzheimer's disease, 1:65
bruises, 1:342
caffeine and, 1:374
constipation, 1:597, 598
dementia, 2:663–664
Feldenkrais method for, 2:819
fractures, 2:863
fructooligosaccharides for, 2:874
geriatric massage for, 2:917–918
ginkgo for, 2:922
glutathione for, 2:940
heart attacks, 2:1011, 1012
heart disease, 2:1016
influenza, 2:1186, 1189
itching, 2:1228
Korean ginseng for, 2:927, 928, 929
massage therapy for, 3:1442
music therapy for, 3:1552
nutrition, 4:2013–2018, 2013*t*, 2014*t*
shingles, 4:2054
t'ai chi for, 4:2193–2194
vitamin B12 for, 4:2336
vitamin D for, 4:2347
vitamin E for, 4:2350
Elecampane
asthma, 1:156
bronchitis, 1:340
pleurisy, 3:1768
tuberculosis, 4:2276
wheezing, 4:2372
Electric Power Research Institute, 3:1332
Electrical burns, defined, 1:361
See also Burns
Electrical curettage, for Kaposi's sarcoma, 2:1258
Electro-oral galvanism, 2:1078
Electroacupuncture, 1:187; 2:*749*, **749–750,** 1078
Electrocardiograms (ECGs)
angina, 1:90
heart attacks, 2:1012
heart disease, 2:1017
ischemia, 2:1224
Electrocautery
genital warts, 2:914
rosacea, 3:1946
skin cancer, 4:2074
Electrocochleography (EcoG), for Ménière's disease, 3:1466
Electroconvulsive therapy (ECT), 1:258; 2:671–672
Electroencephalography (EEG)
biofeedback with, 1:176, 243
epilepsy, 2:777
headaches, 2:1004
memory loss, 3:1462
sensors for, 1:244
Electrolyte replacement therapy. *See* Fluid therapy
Electromagnetic energy
meridians, 1:15
psychosomatic medicine, 3:1843
Electromagnetic field therapy. *See* Magnetic therapy
Electromagnetic radiation, 3:1872
Electromyography (EMG)
biofeedback and, 1:244
carpal tunnel syndrome diagnosis, 1:408
headaches, 2:1004
herniated disks, 2:1056
Lou Gehrig's disease and, 3:1361
pelvic muscle strengthening and, 2:1264, 1265
peripheral neuropathy, 3:1734
Electron paramagnetic resonance, 3:1620
Electronic Ear, 1:180
Electronystagmography (ENG), 2:713; 3:1466
Electrotherapy
Cayce systems and, 1:424
for cold sores, 1:563
for temporomandibular joint syndrome, 4:2207
Elemental mercury, 3:1486, 1488
Elements. *See* Five elements principle
Eleuthero ginseng. *See* Siberian ginseng
Eleutherococcus senticosus. *See* Siberian ginseng
Elevation, of wounds, 4:2399
Elidel, for eczema, 2:744
Elimination diet, 2:**750–752**
detoxification and, 2:678
endometriosis, 2:759
environmental therapy and, 2:766
peptic ulcers, 4:2285
sinus infections, 4:2069
ELISA (enzyme-linked immunosorbent assay) tests
AIDS, 1:35
detoxification, 2:678
environmental therapy, 2:766
gonorrhea, 2:950
syphilis, 4:2183
Elixir ad longam vitam, 1:265
Elizabeth I (queen), 3:1431
Ellagic acid, 1:246
Ellis, Albert, 3:1845
Elm flower essence, 1:198; 2:850*t*, 851
Embolic strokes, 4:2154
See also Strokes
Embolisms, 1:291; 3:1739–1741
EMDR (Eye movement desensitization and reprocessing), 3:1785
Emend, for motion sickness, 3:1522
Emergency treatment
anaphylaxis, 1:56
food poisoning, 2:861–862
fractures, 2:864
heavy metal poisoning, 2:1037; 3:1318
wounds, 4:2399–2400
See also First aid
Emesis. *See* Vomiting
Emetic weed. *See* Lobelia
Emetics
blessed thistle, 1:288
boneset, 1:307
lobelia, 3:1354, 1355
phytolacca, 3:1748
EMG. *See* Electromyography
Emmenagogues
bitter melon, 1:264
blessed thistle, 1:289
blue cohosh, 1:299
cramp bark, 1:622
feverfew, 2:833
horehound, 2:1102
mugwort, 3:1533
oregano, 3:1639
parsley, 3:1712
pennyroyal, 3:1726, 1727
red cedar, 3:1889
rosemary, 3:1951
ruta, 3:1961
safflower, 4:1965
saffron, 4:1967
thuja, 4:2231
thyme, 4:2236
for uterine cancer, 4:2299
valerian, 4:2312
white peony root, 4:2375
wintergreen, 4:2387
wormwood, 4:2396
Emodin, in fo ti, 2:854
Emory University, 4:2193
Emotional anxiety, defined, 1:113
See also Anxiety

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Emotional therapy
apis for, 1:118
arsenicum album for, 1:144
dance therapy as, 2:*655*, 655–658
ignatia for, 2:1157
massage therapy for, 3:1442
Native American medicine, 3:1566
pulsatilla for, 3:1853
Rubenfeld synergy method as, 3:1957–1958
Tibetan medicine, 4:2239
Emotional trauma. *See* Psychic trauma
Emotions
aromatherapy and, 1:139, 141
Bach flower essences and, 1:197–199
bhakti yoga and, 1:236
color and, 1:184
dance therapy and, 2:656, 657
music therapy and, 3:1551
ovarian cysts and, 3:1676
psychophysiology and, 3:1841, 1842
Rescue Remedy for, 3:1909–1910
Empacho, curanderismo and, 1:640
Emphysema, 2:**753–758**
anise for, 1:94
Gerson therapy for, 2:919
grape seed extract for, 2:961
khella for, 2:1271
lobelia for, 3:1355
manganese for, 3:1422
marijuana for, 3:1432
MSM for, 3:1530
pinellia for, 3:1757
Rosen method for, 3:1953
Emphysematous pyelonephritis. *See* Kidney infections
Empowerment, art therapy and, 1:146
Empress of herbs. *See* Dong quai
Empty sella syndrome, 1:71
Enbrel (etanercept), 1:97; 2:1253
Encephalitis
from measles, 3:1446
memory loss and, 3:1461
from mumps, 3:1545
from rabies, 3:1870
Encopresis. *See* Constipation
Encyclopedia Britannica, 3:1431
Encyclopedia of Natural Medicine (Murray and Pizzorno), 3:1543
Endangered species
American ginseng, 2:924
blue cohosh, 1:298
cat's claw, 1:421
colchicum, 1:560
gastrodia, 2:904
goldenseal, 2:948
hoodia, 2:1099
lomatium, 3:1357
prince's pine, 3:1814
slippery elm, 4:2087
traditional African medicine and, 4:2254
Endarterectomy, carotid, 1:448
Endocrine system, 1:119; 4:2222
Endogeneous *vs.* replacement hormones, 1:248–249
Endometrial cancer, 2:1257; 4:2298–2300
Endometriosis, 2:**758–761**
cramp bark for, 1:622
infertility and, 2:1179–1180, 1181
rhubarb for, 3:1934
Endometriosis Association, 2:759
Endometritis, 3:1721
Endonasal technique, 1:511; 2:733
Endorphins, 2:844
Endoscopic retrograde cholangiopancreatography (ERCP), 3:1694
Endoscopy
diarrhea, 2:697
gastritis, 2:902
gastroesophageal reflux, 2:1024
heartburn, 2:1023
hiatal hernia, 2:1060–1061
indigestion, 2:1169, 1170
inflammatory bowel disease, 2:1184
parasitic infections, 3:1704
peptic ulcers, 4:*2284*, 2285
snoring, 4:2097
stomachaches, 4:2143
Endotoxin, gum disease and, 2:976
Endurance sports, medium-chain triglycerides and, 3:1456–1457
Enemas
with coffee, 1:395; 2:919, 920, 1267
Gerson therapy and, 1:395; 2:919, 920
for inflammatory bowel disease, 2:1184
Kelley-Gonzalez diet and, 2:1267
with oak, 3:1620
in panchakarma, 3:1689, 1690
with scallion, 4:1984
for sciatica, 4:2002
Energy (Stone), 3:1776
Energy, life. *See* Life energy
Energy Anatomy (Myss), 2:763
Energy cyst release, 1:627
Energy medicine, 2:**761–764**
for hypercortisolemia, 2:1125
polarity therapy as, 3:1774, 1776
qigong and, 3:1860
radiesthesia and, 3:1877–1888
reiki, 3:1899–1902
spiritual healing and, 3:1794
therapeutic touch and, 4:2222, 2223–2224
Energy meridians. *See* Meridians
Energy trigrams (feng shui), 2:821–823, *822*
ENG (electronystagmography), 2:713; 3:1466
Engelhardt, John, 2:1057
Engerix-B hepatitis vaccine, 2:1040
English bog myrtle. *See* Bayberry
English lavender. *See* Lavender
English oak. *See* Oak
English pennyroyal. *See* Pennyroyal
The English Physician Enlarged (Culpeper), 2:1049, 1050
English plantain. *See* Plantain
Engramming (trepanation), 4:2266
Enhanced external counterpulsation (EECP), 1:92
Enteritis, 3:1435, 1764
See also Gastroenteritis
Entero-lavage. *See* Colonic irrigation
Enteryx, for narrowed esophagus, 2:1024–1025
Enuresis. *See* Bedwetting
Environmental factors
anxiety, 1:115
cancer, 1:386
disease, 2:677
migraine and, 3:1499
myopia, 3:1557
Environmental illness. *See* Multiple chemical sensitivity
Environmental medicine. *See* Environmental therapy
Environmental Nutrition, 2:693
Environmental pollution. *See* Pollution
Environmental therapy, 2:**764–767**
art therapy and, 1:145–146
color therapy and, 1:577–578
for hypercortisolemia, 2:1125
Enzastaurin, for ovarian cancer, 3:1672
Enzyme activity standards, 1:539
Enzyme immunoassay testing (EIA), for chlamydia, 1:513
Enzyme inhibitors, for Parkinson's disease, 3:1709
Enzyme-linked immunosorbent assay tests. *See* ELISA (enzyme-linked immunosorbent assay) tests
Enzyme-potentiated hyposensitization protocol, 2:1184
Enzyme therapy, 2:**767–769**
mercury poisoning, 3:1489
systemic lupus erythematosus, 4:2188
Enzymes
in colostrum, 1:583
copper and, 1:603
Wigmore diet and, 4:2381, 2382
Eosinophilia myalgia syndrome, 5-HTP and, 2:845

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

EPA. *See* U.S. Environmental Protection Agency
EPA (eicosapentaenoic acid)
anti-inflammatory diet, 1:106
in fish oil, 2:841, 842
sources, 2:784
Ephedra, 2:**769–773,** *770*
asthma, 1:156
hay fever, 1:54
heart attacks, 2:1011
Internet promotion, 1:319–320
kola nuts, 2:1287
pleurisy, 3:1768
sinus infections, 4:2069
weight loss, 2:703, 770, 771, 772; 3:1624
Ephedrine
in ephedra, 2:770, 771, 772–773
for rhinitis, 3:1929
strokes and, 4:2157
Epi-pens, 1:56
Epicondylitis. *See* Tennis elbow
Epicurus, 4:2324
Epidemic parotitis. *See* Mumps
Epidemics
influenza, 2:1186
malaria, 3:1414
meningitis, 3:1470
mumps, 3:1545
Epidemiology, Mediterranean diet and, 3:1453
Epidermophyton floccosum, athlete's foot and, 1:168
Epididymectomy, 2:775
Epididymitis, 2:*773,* **773–776**
Epidural anesthesia, 1:485
Epigallocatechin-3-gallate (EGCG), 2:967–968
Epilepsy, 2:**776–780**
cyperus for, 1:651
Gerson therapy for, 2:919
ignatia for, 2:1157
magnesium for, 3:1406
manganese for, 3:1422, 1423
marijuana for, 3:1432
meditation for, 3:1449
mistletoe for, 3:1511
motherwort for, 3:1518
mugwort for, 3:1533
neem for, 3:1589
passionflower for, 3:1715
pyridoxine for, 3:1857
ruta for, 3:1961
skullcap for, 4:2075
traditional African medicine for, 4:2253
valerian for, 4:2312
Epileptic focus, 2:776
Epimedium, 2:**780–782,** *781;* 4:2033
Epinephrine, anaphylaxis, 1:56
Episiotomy, sitz baths for, 2:1122
Epithelial cells, 1:449; 3:1667
Epithelial growth factors, in colostrum, 1:583
Epsom salts. *See* Magnesium sulfate
Epstein, Samuel S., 1:386
Epstein-Barr virus (EPV)
chronic fatigue syndrome, 1:531
mononucleosis, 3:1513, 1515
overview, 3:1542
EPV. *See* Epstein-Barr virus
EPWT (Extracorporeal Pressure Wave Treatment), for heel spurs, 2:1029
Equanil (meprobamate), for anxiety, 1:116
Equiguard, 1:645–646; 4:1990
Equine-assisted therapy. *See* Therapeutic riding
Equinovarus, 1:442
Equinus, 1:442
Equisetum species. *See* Horsetail
Erba ruggine, for worms, 4:2393
ERCP (endoscopic retrograde cholangiopancreatography), 3:1694
Erectile dysfunction. *See* Impotence
Ergonomics
carpal tunnel syndrome, 1:408, 409
neck pain, 3:1584, 1585
pinched nerves, 3:1752, 1754
sciatica, 4:2003
Ergotamine. *See* Botulinum toxins
Erickson, Milton, 3:1958
Erikson, Erik, 3:1845
Eriodictyon species. *See* Yerba santa
Erosive gastritis, 2:900, 902, 903
See also Gastritis
ERT. *See* Estrogen replacement therapy (ERT)
Ertapenem, for pneumonia, 3:1772
Eryngium planum, for whooping cough, 4:2379
Eryrngo-leaved liverwort. *See* Iceland moss
Erythema marginatum, from rheumatic fever, 3:1921
Erythema migrans, 3:*1384,* 1385
Erythroblastosis fetalis, 1:441; 2:1234, 1237
Erythrocyte sedimentation rate tests, 4:2188
Erythrodermic psoriasis, 3:1836
Erythromycin
conjunctivitis, 1:595
pneumonia, 3:1772
whooping cough, 4:2380
Esalen Institute, 4:2259
Escharotic treatment, 2:**782–784**
Escherichia coli
food poisoning from, 2:858, 859*t,* 862
garlic and, 2:895
gastroenteritis from, 2:907
grapefruit seed extract for, 2:965
kidney infections and, 2:1273
manuka honey for, 3:1428
meningitis from, 3:1470
oregano for, 3:1640
spearmint for, 4:2119
Esophageal cancer, 2:1021
Esophageal manometry, 2:1023
Esophagitis, 2:1021, 1168, 1170
Esquire, 1:75
Essays Toward a Materia Medica of the United States (Barton), 2:948
Essential amino acids, 1:73, 74
Essential autism, 1:189
See also Autism
Essential fatty acids (EFAs), 2:**784–787**
Alzheimer's disease, 1:67
in black currant seed oil, 1:274
blood clots, 1:292
depression, 2:670
in evening primrose oil, 2:799
fungal infections, 2:877
hearing loss, 2:1009
jaundice, 2:1236
juvenile rheumatoid arthritis, 2:1253
leukemia, 3:1334
lung cancer, 3:1371
medium-chain triglycerides and, 3:1458
meningitis, 3:1472
multiple sclerosis and, 3:1542
neuralgia, 3:1596
prickly heat, 3:1809
prostate enlargement, 3:1831
radiation injuries, 3:1876
retinopathy, 3:1919
schizophrenia, 4:1998
senior nutrition and, 4:2017
tinnitus, 4:2242
tuberculosis, 4:2276
Essential oils, 2:**787–790**
angelica, 1:87
anise, 1:93, 94
for anxiety, 1:115
in bitters, 1:266
chamomile, 1:455–456
cinnamon, 1:544
in compresses, 2:1122
for cuts and scratches, 1:648
defined, 1:318
for fatigue, 2:816
for hay fever, 2:998
herbal medicine and, 2:1051–1052
hydrotherapy and, 2:1121–1122
hyssop, 2:1153
for infertility, 2:1181
for laryngitis, 3:1308
of lavender, 3:1311
for lice infestations, 3:1338
mullein, 3:1537
multiple chemical sensitivity and, 3:1540

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

myrrh, 3:1561
nettle, 3:1592
oregano, 3:1639–1641
for Parkinson's disease, 3:1708
peppermint, 3:1731–1732
rosemary, 3:1950–1951
safety warnings, 1:320
spearmint, 4:2119
thuja, 4:2232
thyme, 4:2238
wintergreen, 4:2386, 2387
See also Aromatherapy
Essential tremor, 4:2262, 2263
Essiac tea, 2:**790–792;** 4:2042
Estebany, Oskar, 4:2222
Estheticians, facial massage and, 2:809, 811
Estradiol, 1:249; 2:1110; 3:1571
Estriol, 1:249; 2:1110; 3:1571
Estrogen
cellulite and, 1:437
cervical dysplasia and, 1:451
fractures and, 2:863
hot flashes and, 2:1108, 1110, 1111
interstitial cystitis and, 2:1201
memory loss and, 3:1462
menopause and, 3:1474
menstruation and, 3:1479
natural hormone replacement therapy and, 3:1570, 1571, 1572, 1574
overview, 1:249
premenstrual syndrome and, 3:1804, 1807
for prostate cancer, 3:1827
saw palmetto and, 4:1979
vitamin C and, 4:2345
Estrogen antagonists, for uterine fibroids, 4:2303
Estrogen replacement therapy (ERT)
aging, 1:31
Alzheimer's disease, 1:69
vs. black cohosh, 1:269
boron and, 1:313
calcium and, 1:379
health risks, 3:1477
history, 1:248
menopause, 3:1477
osteoporosis, 3:1665–1666
urinary incontinence, 4:2293
See also Hormone replacement therapy
Estrone, 1:249; 2:1110; 3:1571
Eszopiclone, for sleep disorders, 4:2086
Etanercept, 1:97; 2:1253
Ethambutol, for tuberculosis, 4:2277
Ethanol. *See* Alcoholic beverages
Etheric body (anthroposophical medicine), 1:103
Ethics
fetal tissue transplantation, 4:2263
lacto-ovo vegetarianism, 3:1301
placebo effect, 3:1762
stem cell research, 1:434; 3:1711
veganism, 4:2319–2320
vegetarianism, 4:2329
The Ethics of Diet (Williams), 3:1301
Ethnobotany, 1:315
Ethosuximide, for epilepsy, 2:778
Ethylenediamine tetraacetic acid. *See* EDTA chelation therapy
Ethyol (amifostine), for dry mouth, 2:721
Etrentinate, for psoriasis, 3:1837–1838
Eucalyptol, 2:792, 793
Eucalyptus, 2:**792–795**
aromatherapy uses, 1:137*t;* 2:788
asthma, 1:157
bronchitis, 1:340
common cold, 1:591; 2:1046, 1047
cuts and scratches, 1:648
ear infections, 2:733
fatigue, 2:816
fever, 2:832
gum diseases, 2:979
in hydrotherapy, 2:1122
influenza, 2:1187, 1188
juvenile rheumatoid arthritis, 2:1253
knee pain, 2:1282
laryngitis, 3:1308, 1309
low back pain, 3:1365
mononucleosis, 3:1515
pleurisy, 3:1768
prickly heat, 3:1809
snoring, 4:2098
sore throat, 4:1987, 2106
strep throat, 4:2148
tuberculosis, 4:2276
wheezing, 4:2372
whooping cough, 4:2380
Eucommia bark, 2:**795–796;** 4:2033
Eugenia aromaticum. See Clove
EULAR (European League Against Rheumatism), 2:1251
Eulexin (flutamide), for polycystic ovarian syndrome, 3:1677
Eupatorium, 2:**796–798**
influenza, 2:1188
vomiting, 4:2358
Eupatorium ayapana, 2:796, 797
Eupatorium perfoliatum. See Boneset
Eupatorium purpureum. See Gravel root
Eupatorium rebaudianum. See Stevia
Euphorbia species, for warts, 4:2363
Euphrasia, 2:**798–799**
See also Eyebright
Euphrasia officinalis. See Eyebright
Eurixor. *See* Iscador
European angelica. *See* Angelica
European arnica. *See* Arnica
European buckthorn. *See* Buckthorn
European horse chestnut. *See* Horse chestnut
European Journal of Gastroenterology & Hepatology, 4:1963
European League Against Rheumatism (EULAR), 2:1251
European mistletoe. *See* Mistletoe
European pennyroyal. *See* Pennyroyal
European Scientific Cooperative on Phytotherapy, 3:1715
European skullcap. *See* Skullcap
European Society of Human Reproduction and Embryology, 3:1776
European willow. *See* White willow
Eurythmy, 1:103
Eustachian tube, ear infections and, 2:731, 732, 736
Evening primrose oil, 2:**799–801,** *800*
childbirth, 1:270
chronic fatigue syndrome, 1:533
dermatitis, 2:674
eczema, 2:743
endometriosis, 2:760
essential fatty acids in, 2:786
fibrocystic breast disease, 2:838
fungal infections, 2:877
gamma-linolenic acid in, 2:882, 884
hangovers, 2:988
hay fever, 2:998
itching, 2:1229
juvenile rheumatoid arthritis, 2:1253
learning disorders, 3:1322
linoleic acid in, 3:1348, 1349
menopause, 3:1475
ovarian cancer, 3:1670
ovarian cysts, 3:1676
premenstrual syndrome, 3:1806
psoriasis, 3:1837
retinopathy, 3:1919
rosacea, 3:1946
uterine fibroids, 4:2302
whooping cough, 4:2379
See also Eyebright
Evercetin, in spirulina, 4:2123
Evers therapy, 3:1491
Evista (raloxifene), for osteoporosis, 3:1477, 1666
Evodia fruit, 2:*801,* **801–803**
Evolution
human digestive system, 4:2324
Shangri-la diet and, 4:2038, 2039
Evoxac (cevimeline), for dry mouth, 2:721
Examinations. *See* Physical examinations
Exanthems, 3:1445
Excedrin Migraine, 3:1500
Excessive drainage syndrome, 3:1821

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Excessive pronation, heel spurs and, 2:1028
Excisional new attachment procedure, 2:978
Exemestane, for breast cancer, 1:326
Exercise, 2:**803–806**
biological cancer treatment, 1:395
bulimia nervosa, 1:353
cellulite, 1:438
chronic fatigue syndrome, 1:533
glutamine, 2:938
heart attacks, 2:1011
heart disease, 2:1017
hemorrhoids, 2:1034
high sensitivity C-reactive protein test, 2:1069
hot flashes, 2:1112
muscle cramps, 3:1549, 1550
obesity, 3:1623
Ornish diet, 3:1646, 1647
Pritikin diet, 3:1817
Rescue Remedy for, 3:1909
shin splints, 4:2055–2056
yoga as, 2:993–994; 4:2409, 2412, 2413
Exercise equipment, for Pilates, 3:1750
Exercise-induced asthma, 1:154
Exercise stress tests. *See* Stress tests
Exercise therapy
asthma, 1:157
atherosclerosis, 1:167
blood clots, 1:293
bunions, 1:358
chemical poisoning, 1:471
cholesterol control, 1:520
colitis, 1:571
common cold, 1:591
dysmenorrhea, 2:730
emphysema, 2:755–756
endometriosis, 2:760
fibromyalgia, 2:839
gastrointestinal gas, 2:899, 899*t*
glaucoma, 2:934
headaches, 2:1004, 1005
heart attacks, 2:1014
heart disease, 2:1019
herniated disks, 2:1057
hypercortisolemia, 2:1125
hypothyroidism, 2:1150
insulin resistance, 2:1199
irritable bowel syndrome, 2:1220
ischemia, 2:1225
juvenile rheumatoid arthritis, 2:1252, 1253
knee pain, 2:1283, 1284
Kneipp wellness and, 2:1285
laryngitis, 3:1308, 1309
low back pain, 3:1365, 1366
lymphomas, 3:1420
menopause, 3:1476
menstruation disorders, 3:1483
mercury poisoning, 3:1489
multiple chemical sensitivity, 3:1540
multiple sclerosis, 3:1543
osteoporosis, 3:1666–1667
ovarian cancer, 3:1670
ovarian cysts, 3:1676
pain, 3:1686, 1687
panchakarma and, 3:1690
phlebitis, 3:1740
with polarity therapy, 3:1774–1775
polycystic ovarian syndrome, 3:1778
pranic healing and, 3:1792
premenstrual syndrome, 3:1807
Raynaud's syndrome, 3:1887
sciatica, 4:2002, 2003
stress, 4:2152
strokes, 4:2157
systemic lupus erythematosus, 4:2188
temporomandibular joint syndrome, 4:2207
toxic shock syndrome, 4:2252
varicose veins, 4:2317
Exfoliants, 1:231
Expectorants
anise, 1:94
arka, 1:132
bloodroot, 1:297
for bronchitis, 1:340
children's cold remedy ban, 2:1045
for common cold, 1:592
for cough, 1:619
eucalyptus, 2:793
fennel, 2:824
fritillaria, 2:869
horse chestnut, 2:1105
hyssop, 2:1152, 1153
licorice, 3:1342
mullein, 3:1536
myrrh, 3:1561
nettle, 3:1591, 1592
ophiopogon, 3:1637
osha, 3:1652
peppermint, 3:1730
phytolacca, 3:1748
pinellia, 3:1757, 1758
plantain, 3:1764
red clover, 3:1891
schisandra, 4:1989
slippery elm, 4:2088
tea tree oil, 4:2198
thuja, 4:2232
for wheezing, 4:2372
Exposure therapy. *See* Desensitization
Expression, of essential oils, 2:788
Expressive arts therapy. *See* Art therapy
External fixation, for fractures, 2:865
External hemorrhoids. *See* Hemorrhoids
External hordeola. *See* Sties
External irradiation, 3:1875
Extra sensory perception, radiesthesia and, 3:1877
Extra-temporal resection, for epilepsy, 2:779
Extracorporeal Pressure Wave Treatment (EPWT), for heel spurs, 2:1029
Extracorporeal Shock Wave Lithotripsy (ESWL), 2:1274, 1278
Extrapulmonary tuberculosis, 4:2275–2276
See also Tuberculosis
Eye balm. *See* Goldenseal
Eye diseases
arsenicum album for, 1:144
bilberry for, 1:237–239
bioflavonoids for, 1:246
black walnut for, 1:278
chemical poisoning, 1:472
chrysanthemum for, 1:535
cicada for, 1:541
craniosacral therapy for, 1:627
cuscuta for, 1:645
euphrasia for, 2:798–799
eyebright for, 2:798–799, 807–808
field mint for, 4:2117
ginkgo for, 2:922
grape skin for, 2:964
Hepar sulphuris for, 2:1035
homeopathy for, 2:1094
horsetail for, 2:1107
lutein for, 3:1374
lycium fruit for, 3:1376
lycopodium for, 3:1380, 1381
lysimachia for, 3:1391
manuka honey for, 3:1428
mercurius vivus for, 3:1484
pine bark extract for, 3:1756
pulsatilla for, 3:1852
rhubarb for, 3:1934
rhus toxicodendron for, 3:1937
ruta for, 3:1961
sesame oil for, 4:2029
sickle cell anemia and, 4:2064
sinus infections, 4:2069
spearmint for, 4:2119
squawvine for, 4:2129
sulfur for, 4:2162
syntonic optometry for, 4:2178–2179
triphala for, 4:2272
Vitamin A deficiency and, 1:227
vitamin E for, 4:2350
See also specific eye diseases
Eye drops. *See* Opthalmic solutions
Eye examinations
glaucoma, 2:933
macular degeneration, 3:1401
myopia, 3:1554–1555
retinopathy, 3:1918, 1920
Eye exercises. *See* Orthoptics
Eye movement desensitization and reprocessing (EMDR), 3:1785

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Eye of the star. *See* Horehound
Eye patches, for lazy eye, 3:1314–1315
Eye root. *See* Goldenseal
Eye surgery
astigmatism, 1:160
cataracts, 1:417–418
hyperopia, 2:1127–1128
lazy eye, 3:1315
myopia, 3:1556
retinal detachment, 3:1916
retinopathy, 3:1919
Eyeball Method (Zone diet), 4:2423–2425
Eyebright, 2:798–799, **806–808**
conjunctivitis, 1:594–595
hay fever, 2:999
hyperopia, 2:1127
measles, 3:1446
night blindness, 3:1603
retinopathy, 3:1919
rubella, 3:1956
sneezing, 4:2096
Eyeglasses
Adie's pupil, 1:24
astigmatism, 1:160
vs. Bates method, 1:206
vs. behavioral optometry, 1:216–217
cataracts, 1:417, 418
hyperopia, 2:1127
lazy eye, 3:1314, 1315
myopia, 3:1556
Eyewashes
with chamomile, 1:455
conjunctivitis, 1:594–595
with fennel, 2:824
with goldenseal, 2:949
with lysimachia, 3:1391
measles, 3:1446
with red clover, 3:1891
rubella, 3:1956
with squawvine, 4:2129
with triphala, 4:2272

F

Fa ba xia. *See* Pinellia
FAA (Federal Aviation Agency), 3:1520, 1874
Facial masks, with French green clay, 2:867
Facial massage, 2:**809–812**, *810*
Fad diets
adolescents, 4:2202
childhood obesity, 1:492
overview, 2:701, 703
Fagus grandifolia. *See* Beech
Failure to thrive, breast-feeding problems and, 1:328
Fainting, magnolia for, 3:1410
Faith healing. *See* Prayer and spirituality; Spiritual healing
Falciparum malaria, 3:1415, 1416–1417
Falls, t'ai chi for, 4:2193–2194
False hellebore, cardiac glycosides from, 2:707
False Queen Anne's lace. *See* Khella
False saffron. *See* Safflower flower
False unicorn
infertility, 2:1181
pelvic inflammatory disease, 3:1724
premenstrual syndrome, 3:1805
uterine cancer, 4:2299
False wintergreen. *See* Wintergreen
Famciclovir, for shingles, 4:2053, 2054
Familial hyperlipidemia, niacin for, 3:1600
Familial hypophosphatemia, vitamin D for, 4:2347
Familial Lou Gehrig's disease, 3:1360
See also Lou Gehrig's disease
Familial Mediterranean fever
colchicum for, 1:560
Siberian ginseng for, 2:931
Family factors
bulimia nervosa, 1:353, 355
childhood obesity, 1:488*t*, 492
obsessive-compulsive disorder, 3:1628
substance abuse, 4:2158
Family Practice News, 1:597
Family therapy
overview, 3:1845–1846, 1846*t*
schizophrenia, 4:1998
substance abuse, 4:2158
Famotidine, for indigestion, 2:1170
Fanconi syndrome, vitamin D for, 4:2347
Fansidar, for malaria, 3:1417
Fareston (toremifene), for breast cancer, 1:326
Farming and gardening
bonemeal fertilizers, 1:305
Gerson therapy and, 2:919
of kelp, 2:1269–1270
of organic foods, 3:1642–1644, 1642*t*
Farsightedness. *See* Hyperopia
Fascia, Hellerwork and, 2:1031
Fasciculations, 3:1360, 1361, 1548
Faslodex (fulvestrant), for breast cancer, 1:326
Fast food, 1:492; 4:2199*t*
Fasting, 2:**812–815**
cerebral palsy, 1:444
chemical poisoning, 1:471–472
chronic fatigue syndrome, 1:533
cirrhosis, 1:547
as detoxification, 2:676, 679, 812
epididymitis, 2:774
gonorrhea, 2:950
heavy metal poisoning, 2:1027
jaundice, 2:1235, 1236
juice fasts, 2:813, 1246–1247, 1248
peripheral neuropathy, 3:1734
retinopathy, 3:1919
tuberculosis, 4:2277
Fasting blood glucose tests. *See* Blood glucose tests
Fasting hypoglycemia, 2:1144
See also Hypoglycemia
Fat. *See* Body fat; Dietary fat
Fatigue, 2:*815*, **815–818**
Chinese yams for, 1:506, 507
cordyceps for, 1:608
dong quai for, 2:718
fibromyalgia and, 2:839
gastrodia for, 2:905
goldenrod for, 2:946
ipecac for, 2:1207
kelp for, 2:1269
kola nuts for, 2:1286
Korean ginseng for, 2:928
McDougall diet for, 3:1443
MSM for, 3:1531
mullein for, 3:1536
narcolepsy and, 3:1563
schisandra for, 4:1989, 1990
Siberian ginseng for, 2:931
skullcap for, 4:2075
stevia for, 4:2138
Thai massage for, 4:2218
therapeutic touch for, 4:2224
thunder god vine for, 4:2235
yerba santa for, 4:2408
See also Chronic fatigue syndrome
FCC (Food Chemicals Codex), 1:539
FDA. *See* U.S. Food and Drug Administration
Fear
vs. anxiety, 1:113
Bach flower essences and, 1:197–198; 2:852
Featherfew/featherfoil. *See* Feverfew
Febrifuge plant. *See* Feverfew
Febrifuges. *See* Fever
Fecal occult blood tests (FOBTs), for colorectal cancer, 1:579, 582
Federal Aviation Agency (FAA), 3:1520, 1874
Federal Communications Commission (FCC), 2:700
Federal Court of Australia, 3:1873
Federal Institute for Drugs and Medical Devices (Germany), 2:996
Federal Trade Commission (FTC), 2:783
Federation Internationale du Pharmaceutiques (FIP), 1:539
Feingold, Benjamin, 1:175, 176
Feldenkrais, Moshe, 1:183; 2:819

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Feldenkrais Guild of North America (FGNA), 2:819, 820
Feldenkrais method, 2:**818–821**
bone spurs, 1:309
corns and calluses, 1:610
Hanna, Thomas and, 4:2102
heel spurs, 2:1029
hyperopia, 2:1127
as movement therapy, 3:1525
neck pain, 3:1586
Parkinson's disease, 3:1708
peripheral neuropathy, 3:1734
Rubenfeld synergy method and, 3:1958
Ttouch and, 1:183
Felon herb. *See* Mugwort
Feltwort. *See* Mullein
Female ginseng. *See* Dong quai
Female infertility
American ginseng for, 2:924
causes, 2:1178, 1179–1180
treatment, 2:1180–1182
Femara (letrozole), for breast cancer, 1:326
Fenamate, for menstruation disorders, 3:1483
Fenfluramine, 3:1625
Fenfluramine-phentermine (fen/phen), 3:1625
Feng shui, 2:**821–823,** *822*
Fennel, 2:**823–825**
digestion, 2:704, 705
epilepsy and, 2:777
fractures, 2:864
hangovers, 2:988
indigestion, 2:1169
juvenile rheumatoid arthritis, 2:1253
laryngitis, 3:1308
menopause, 3:1475
nausea, 3:1583
premenstrual syndrome, 3:1805
rheumatic fever, 3:1922
stomachaches, 4:2143
worms, 4:2393
Fenugreek, 2:**825–828,** *826*
angina, 1:91
atherosclerosis, 1:166
diabetes, 2:689
Ménière's disease, 3:1467
menstruation disorders, 3:1482
polycystic ovarian syndrome, 3:1779
Feranium, for knee pain, 2:1283
Fermented foods, 2:1290; 3:1818, 1820, 1821
Fern-leafed lomatium. *See* Lomatium
Ferning of saliva, 4:1972
Ferrum metallicum, for anemia, 2:1216
Ferrum phosphoricum, 2:**828–830**
in cell salt therapy, 1:432, 433
ear infections, 2:733
fever, 4:1987
hay fever, 2:999
in homeopathy, 2:1083*t*
iron in, 2:1217
obsessive-compulsive disorder, 3:1629
Fertility drugs, 2:1181; 3:1669; 4:2295
See also Infertility
Fertilizers
with bonemeal, 1:305
Gerson therapy and, 2:919
for organic foods, 3:1643
Fertinex, for infertility, 2:1181
Ferula asafoetida, for stomachaches, 4:2143
Ferula dissoluta. *See* Lomatium
Ferula gummosa, for stomachaches, 4:2143
Fetal development
auditory processing, 1:180, 181
autism, 1:189
calcium, 1:378
cerebral palsy, 1:441, 445–446
drugs, 3:1800
folic acid, 2:856
lead poisoning, 3:1315–1316
mercury poisoning, 3:1489
methionine, 3:1493
month-by-month, 3:1796–1797
poisoning, 1:468, 469, 470
rubella, 3:1955, 1956
Fetal hemoglobin, 4:2062
Fetal tissue transplantation, for Parkinson's disease, 3:1711; 4:2263
Fever, 2:**830–833**
American ginseng for, 2:924
arka for, 1:132–133
arsenicum album for, 1:144, 145
boneset for, 1:306, 307; 2:797
catnip for, 1:419
chamomile for, 1:455
chills and, 1:496–497
Chinese skullcap for, 4:2076
Chinese thoroughwax for, 1:504
cicada for, 1:541
cinnamon for, 1:544
club moss for, 1:550
coix, 1:557
coptis for, 1:607
cornus for, 1:613
devil's claw for, 2:680
echinacea for, 2:739
ephedra for, 2:771
eucalyptus for, 2:794
ferrum phosphoricum for, 2:828
feverfew for, 1:536
gardenia for, 2:894
gentiana for, 2:916
gotu kola for, 2:952
gravel root for, 2:797
Hepar sulphuris for, 2:1035
hibiscus for, 2:1063
homeopathy for, 2:1090
honeysuckle for, 2:1097
horehound for, 2:1102
hydrotherapy for, 2:1120
hyssop for, 2:1152
Iceland moss for, 2:1155
ignatia for, 2:1158
Jamaican dogwood for, 2:1231
kava kava for, 2:1260
kudzu for, 2:1291
lemon balm for, 3:1326
lemongrass for, 3:1328, 1329
lycium fruit for, 3:1376
lycopodium for, 3:1380
lysimachia for, 3:1391
magnolia for, 3:1410
from malaria, 3:1415–1416
mangosteen for, 3:1425, 1426
from mononucleosis, 3:1514
natrum muriaticum for, 3:1569
neem for, 3:1588
nux vomica for, 3:1617
osha for, 3:1653
pau d'arco for, 3:1719
pennyroyal for, 3:1726
peppermint for, 3:1731
prince's pine for, 3:1814
pulsatilla for, 3:1852, 1853–1854
red cedar for, 3:1889
as response to infection, 2:1174
rhubarb for, 3:1934
rhus toxicodendron for, 3:1936, 1937
safflower for, 4:1965
scallion for, 4:1984
with scarlet fever, 4:1985, 1986
sheep sorrel for, 4:2042
skullcap for, 4:2075
sunflower seeds for, 1:536–537
with teething, 4:2204, 2205
therapeutic touch for, 4:2223
thuja for, 4:2231
thunder god vine for, 4:2234
white peony root for, 4:2374
white willow for, 4:2376
wormwood for, 4:2396
yarrow for, 4:2402
yohimbe for, 4:2415
See also Antipyretics
Fever blisters. *See* Cold sores
Feverfew, 2:**833–836,** *834*
asthma, 1:156
endometriosis, 2:760
headaches, 2:1004
menstruation disorders, 3:1482
migraine, 3:1500, 1501
overview, 1:535, 536
pleurisy, 3:1768
premenstrual syndrome, 3:1805
rheumatoid arthritis, 3:1926
Feverwort. *See* Boneset
FGNA (Feldenkrais Guild of North America), 2:819, 820
Fiber. *See* Dietary fiber

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Fibric acid derivative drugs, for cholesterol control, 1:520
Fibrin, 1:538
Fibrinogens, ischemia and, 2:1223, 1225
Fibrinolysis, 1:538
Fibrinolytic agents
heart attacks, 2:1013
strokes, 4:2156
Fibroadenomas, 2:837
Fibrocystic breast disease, 2:**836–838**
breast cancer and, 1:323
fritillaria for, 2:869
iodine and, 2:1205
natural hormone replacement therapy for, 3:1570
Fibroids. *See* Uterine fibroids
Fibromyalgia, 2:**838–840**
ademetionine, 1:20, 21
ademetionine for, 3:1494
chlorella for, 1:516
chronic fatigue syndrome and, 1:530
craniosacral therapy for, 1:627
environmental therapy for, 2:765
5-HTP for, 2:844
Gulf War syndrome and, 2:974
lomatium for, 3:1357
magnetic therapy for, 3:1409
massage therapy for, 3:1442
meditation for, 3:1449, 1452
myotherapy for, 3:1558
noni for, 3:1605
prolotherapy for, 3:1823
reflexology for, 3:1896
Siberian ginseng for, 2:931
t'ai chi for, 4:2193
Field, Tiffany, 2:1172
Field hops. *See* Yarrow
Field hove. *See* Coltsfoot
Field sorrel. *See* Sheep sorrel
Fields, W. C., 3:1944
Fig warts. *See* Genital warts
Fight-or-flight response
anxiety, 1:114
mind/body medicine, 3:1505, 1904–1905
sensory integration disorder, 4:2025
Figs, for warts, 4:2363
Filiform warts, 4:2362
Fillings (teeth). *See* Dental amalgams
Financial considerations. *See* Health care costs
Finasteride
hair loss, 2:984
prostate enlargement, 3:1832
Fine, Thomas, 4:2023
Fine needle biopsy, for breast cancer, 1:324
Fingernail glues
contact dermatitis, 2:673
fungal infections, 2:876
Fingernails. *See* Nails
Finn chamber patch tests, 1:601
Finnish Alpha-Tocopherol, Beta-Carotene Cancer Prevention Study, 4:2093
Finocchio. *See* Fennel
FIP (Federation Internationale du Pharmaceutiques), 1:539
Fire weed. *See* Plantain
First aid
burns, 1:362
chemical poisoning, 1:472
cuts and scratches, 1:648
fractures, 2:864
frostbite, 2:872
ruta for, 3:1961
seizures, 2:779
wounds, 4:2399–2400
First-degree burns, defined, 1:361
See also Burns
First-degree sprains and strains, 4:2127
First International Conference of Qigong, 3:1859
First World Conference for Academic Exchange of Medical Qigong, 3:1859
Fish
anti-inflammatory diet, 1:107
contaminated, 1:473; 2:858*t*
food poisoning from, 2:860–861, 921
mercury poisoning and, 1:473; 3:1486–1488
omega-3 fatty acids in, 3:1630*t*, 1633
Fish oil, 2:**840–843,** *841*
colitis, 1:570
dermatitis, 2:674
dysmenorrhea, 2:729
eczema, 2:743
endometriosis, 2:759
essential fatty acids in, 2:786
fibrocystic breast disease, 2:838
fungal infections, 2:877
hay fever, 2:998
inflammatory bowel disease, 2:1184
ischemia, 2:1225
juvenile rheumatoid arthritis, 2:1253
learning disorders, 3:1322
leukemia, 3:1334
lung cancer, 3:1371
mercury poisoning and, 3:1489
neuralgia, 3:1596
for night blindness, 3:1603
omega-3 fatty acids in, 3:1633
Parkinson's disease, 3:1708
Raynaud's syndrome, 3:1887
rheumatoid arthritis, 3:1926
Fish poison tree. *See* Jamaican dogwood
Fistulas
Crohn's disease, 1:632, 633
diverticulitis, 2:709, 710
Fit for Life program, 2:692–693
Fitness Guide for the After 50 Crowd (Prudden), 3:1559
Fitzgerald, William H., 3:1896, 1897
Five-day measles. *See* Measles
Five elements principle
Ayurvedic medicine, 1:192
chakras, 1:453
Chinese food cures, 1:502, 503
Tibetan medicine, 4:2239
traditional Chinese medicine, 1:18; 2:1042; 4:2256, 2257
Five essential substances (traditional Chinese medicine), 1:502, 503; 2:1042; 4:2256
Five Seed Decoction, 4:2196
Five taste fruit. *See* Schisandra
5 alpha-reductase inhibitors, for prostate enlargement, 3:1832
5-fluorouracil, for genital warts, 2:914
5-FU (chemotherapy drug), 1:504
5-HT. *See* Serotonin
5-HTP
chronic fatigue syndrome, 1:533
depression, 2:671
migraine, 3:1500
weight loss, 2:844; 3:1624
5-hydroxytryptamine. *See* Serotonin
5-hydroxytryptophan. *See* 5-HTP
Fixed contractures, 1:442
Flagyl. *See* Metronidazole
Flannel leaf. *See* Mullein
Flashbacks, post-traumatic stress disorder and, 3:1784
Flat warts, 4:2361
Flatulence. *See* Gas (gastrointestinal)
Flavonoids. *See* Bioflavonoids
Flavorings
angelica, 1:87
anise, 1:94
apricot seed, 1:129
cinnamon, 1:543
gentiana, 2:916
lemon balm, 3:1327
licorice, 3:1342
peppermint, 3:1729
prince's pine, 3:1814
sassafras, 4:1977
spearmint, 4:2119
wintergreen, 4:2387
Flavors. *See* Tastes
Flaxseed, 2:**846–848**
chronic fatigue syndrome, 1:533
constipation, 1:600
dandruff, 2:661
dysmenorrhea, 2:729
endometriosis, 2:759
essential fatty acids in, 2:786
fibrocystic breast disease, 2:838

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Flaxseed *(continued)*
fungal infections, 2:877
hay fever, 2:998
hearing loss, 2:1009
ischemia, 2:1225
itching, 2:1229
knee pain, 2:1283
learning disorders, 3:1322
leukemia, 3:1334
lung cancer, 3:1371
menopause, 3:1475
multiple sclerosis, 3:1543
neuralgia, 3:1596
omega-3 fatty acids in, 3:1633
ovarian cancer, 3:1670
ovarian cysts, 3:1676
pain, 3:1685
Parkinson's disease, 3:1708
polycystic ovarian syndrome, 3:1779
prickly heat, 3:1809
prostate enlargement, 3:1831
retinopathy, 3:1919
rosacea, 3:1946
seborrheic dermatitis, 2:674
systemic lupus erythematosus, 4:2188
uterine fibroids, 4:2302
Flea seed. *See* Plantain
Fleabane. *See* Pennyroyal
Fleas, brewer's yeast and, 1:336
Fleawort. *See* Psyllium
Fleeceflower. *See* Fo ti
Flexeril (cyclobenzaprine), for chronic fatigue syndrome, 1:534
Flinders University of Adelaide, 4:2198
Flirtwort. *See* Feverfew
Floatation REST in Applied Psychophysiology (Fine and Borrie), 4:2023
Floatation REST therapy, 4:*2021*, 2021–2024
Floaters, retinal detachment and, 3:1915
Flooding, in behavioral therapy, 1:219; 3:1744
Florida Institute of Psychophysical Integration, 4:2260
Florinef (fludrocortisone), for chronic fatigue syndrome, 1:534
Flos Carthami Tinctorii, for fibrocystic breast disease, 2:838
Flos inulae, for pleurisy, 3:1768
Flos lonicerae. *See* Honeysuckle
Flow meters, 1:155, 158
Flower Essence Society (FES), 1:536; 2:849
Flower essences, 1:197–200, *198*
botanical medicine and, 1:317
chrysanthemum, 1:536
in Rescue Remedy, 3:1908, 1909*t*
Flower remedies, 1:317; 2:**849–854**, 850*t*
colic, 1:568
obsessive-compulsive disorder, 3:1629
pregnancy, 3:1800
preparation, 3:1908
shingles, 4:2053
wild oat in, 4:2385
Flower velure. *See* Coltsfoot
Flowering Sally. *See* Lysimachia
Flu. *See* Influenza
Fludrocortisone, for chronic fatigue syndrome, 1:534
Fluid and Solid Extracts (Thayer), 1:351
Fluid recommendations
children, 1:491–492, 493
constipation, 1:598
fatigue, 2:816
kidney stones, 2:1277, 1278
seniors, 4:2016
urinary system health, 1:282
Fluid retention. *See* Edema
Fluid therapy
diarrhea, 2:697
food poisoning, 2:861, 862
gastroenteritis, 2:908
kidney stones, 2:1277, 1278
muscle cramps, 3:1550
nausea, 3:1583
pancreatitis, 3:1695
wheezing, 4:2371
Flukes, 4:2392–2393
Flumandine (rimantadine), for influenza, 2:1188, 1189
Flunarizine, for Ménière's disease, 3:1467
Fluorescein angiography, for retinopathy, 3:1918
Fluorescent treponemal antibody absorption tests, for syphilis, 4:2183
Fluorine, 1:462, 463
Fluoroquinolone antibiotics
gonorrhea, 2:951
kidney infections, 2:1274
meningitis, 3:1472
staphylococcal infections, 4:2137
Fluoroscopy, radiation injuries and, 3:1873
Fluoxetine
hot flashes, 2:1111
obsessive-compulsive disorder, 3:1629
premenstrual syndrome, 3:1806
weight loss, 3:1625
Flurbiprofen, for urinary incontinence, 4:2293
Flutamide, for polycystic ovarian syndrome, 3:1677
Fluvoxamine, for obsessive-compulsive disorder, 3:1629
Fo ti, 2:**854–855**
hair loss, 2:984
in herbal cold remedies, 2:1046
Foal's foot. *See* Coltsfoot
FOBTs (fecal occult blood tests), for colorectal cancer, 1:579, 582
Focal infection theory, 2:1077
Foeniculum vulgare. *See* Fennel
Folacin. *See* Folic acid
Folate. *See* Folic acid
Foldi, Michael, 3:1388
Folen, Lilias, 2:993
Folic acid, 2:**855–857**, 856*t*
canker sores, 1:399
cerebral vascular insufficiency, 1:448
cervical dysplasia, 1:451
cirrhosis, 1:547
colitis, 1:570
constipation, 1:598
cough, 1:618
depression, 4:2338
genital warts, 2:914
gout, 2:957
gum diseases, 2:977
infertility, 2:1180
ischemia, 2:1225
muscle cramps, 3:1550
peripheral neuropathy, 3:1734
phlebitis, 3:1740
restless leg syndrome, 3:1911, 1912
schizophrenia, 4:1998
seniors, 4:2017
smoking cessation, 4:2093
strokes, 4:2157
uterine cancer, 4:2299
vitamin B12 and, 4:2338
Folic acid deficiency anemia, 1:83, 86; 2:857
Folium Andrographis. *See* Andrographis
Folium eriobotryae, for vomiting, 4:2358
Folium perillae, for worms, 4:2393
Folk medicine
angelica, 1:87
apple cider vinegar, 1:123
arka, 1:132
arnica, 1:135
arrowroot, 1:142
artichoke, 1:149
blessed thistle, 1:288, 289
bloodroot, 1:297
borage, 1:309
bryonia, 1:346
buchu, 1:347
burdock, 1:359
calendula, 1:382
coix, 1:557
cornsilk, 1:611
cotton root bark, 1:616
curanderismo, 1:639–641
cuscuta, 1:645–646

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

dandelion, 2:658–659
devil's claw, 2:680
elder flower, 2:746, 747
Iceland moss, 2:1155
lead poisoning and, 3:1317
mercury, 3:1487, 1489
mistletoe, 3:1510
mugwort, 3:1532–1533
mullein, 3:1536
red clover, 3:1891
sage, 4:1970
sassafras, 4:1977, 1978
saw palmetto, 4:1979–1980
slippery elm, 4:2087–2088
suma, 4:2165
thyme, 4:2236
for warts, 4:2363
witch hazel, 4:2389
yarrow, 4:2401, 2402
Folk Medicine: A Vermont Doctor's Guide to Good Health (Jarvis), 1:122–123
Folkers, Karl, 1:555
Folkman, Judah, 1:410
Follicle-stimulating hormone (FSH)
amenorrhea and, 1:71, 72
for infertility, 2:1181
menopause and, 3:1474
natural hormone replacement therapy and, 3:1574
Follicular cysts, 3:1673, 1674, 1677
Follicular phase of menstruation, 1:71; 3:1479
Folliculitis, selenium for, 4:2009
Follistim, for infertility, 2:1181
Folstein test, 3:1462
Fomentation therapy, for chills, 1:496
Fontaine, J. A., 3:1678
Food additives and preservatives, 2:702*t*
ADHD and, 1:175
cerebral palsy and, 1:443
chemical poisoning and, 1:469
from chicory, 1:482
elimination diet and, 2:751, 752
learning disorders and, 3:1322
multiple chemical sensitivity and, 3:1540
veganism and, 4:2321
Food allergens, 1:53, 54
Food allergies
ADHD and, 1:175
cellulite and, 1:438
cerebral palsy and, 1:443
in children, 1:493–494
colic and, 1:568, 569
dermatitis and, 2:673, 674
desensitization, 1:55
detoxification and, 2:678
ear infections and, 2:733
earaches and, 2:736–737
eczema and, 2:744
elimination diet and, 2:750–752
environmental therapy and, 2:766
gallstones and, 2:880
gastrointestinal gas from, 2:899
glucosamine for, 2:936
headaches and, 2:1005–1006
hearing loss and, 2:1009
inflammation and, 1:107
inflammatory bowel disease and, 2:1184
interstitial cystitis and, 2:1203
juvenile rheumatoid arthritis and, 2:1253
migraine and, 3:1500
MSM for, 3:1530
multiple chemical sensitivity and, 3:1540
peptic ulcers and, 4:2285
prickly pear cactus, 3:1813
psoriasis and, 3:1837
rheumatoid arthritis and, 3:1927
rosacea and, 3:1945
sinus infections and, 4:2069
Tourette syndrome and, 4:2250
veganism for, 4:2320
Food and Agriculture Organization (FAO), 3:1663*t*, 1818
Food and Chemicals Toxicity, 1:320
Food and Drug Administration. *See* U.S. Food and Drug Administration
Food and Healing (Colbin), 1:487, 491
Food and Nutrition Board
beta carotene, 1:229
choline, 1:521, 522
iodine recommendations, 2:1204
omega-3 fatty acids, 3:1632
omega-6 fatty acids, 3:1636
RDAs, 1:487; 4:2200
Food Chemicals Codex (FCC), 1:539
Food colorings. *See* Artificial food colorings
Food combining
Diamond diet, 2:692–693
natural hygiene diet, 3:1576
Ornish diet, 3:1646
Wigmore diet, 4:2382
Food contamination
chemical poisoning, 1:469
hepatitis, 2:1036
seafood, 2:858*t*
See also Food poisoning
Food diaries
cirrhosis, 1:548
elimination diet, 2:751
hypoglycemia, 2:1146
irritable bowel syndrome, 2:1220
Food exchange diets, for diabetes, 2:688
Food flavorings. *See* Flavorings
Food for Young Children (USDA), 1:487; 4:2200
Food Guide Pyramid
childhood nutrition, 1:487, 489
heart disease, 2:1019
history, 1:487; 4:2200
Mediterranean diet, 3:1454
revisions, 3:1614
teen nutrition, 4:2200–2201
Food guidelines
childhood nutrition, 1:487, 487*t*, 489–491, 489*t*
history, 1:487; 4:2200
seniors, 4:2014–2016, 2017
teen nutrition, 4:2200–2201
USDA recommendations, 3:1614
veganism, 4:2321
vegetarianism, 3:1614; 4:2324*t*, 2326–2327
Food insecurity, childhood nutrition and, 1:492
See also Malnutrition
Food Institute, 1:431
Food packaging
from fenugreek, 2:825
lead poisoning and, 3:1317
Food poisoning, 2:**857–863**, 858*t*, 859*t*, 860*t*
arsenicum album for, 1:144
homeopathy for, 2:1090
lycopodium for, 3:1380
stevia for, 4:2138
wasabi for, 4:2366
Food safety measures, 2:862
Food Services, Inc., 2:943
Food therapy. *See* Diet therapy
Foot
athlete's foot care, 1:169
bunions, 1:356–358
French green clay for, 2:867
horsetail for, 2:1107
toenail infections, 1:168
Foot-a-night vine. *See* Kudzu
Foot warts, 4:2361, 2364
Footwear
bunions, 1:357, 358
bursitis, 1:365
corns and calluses, 1:609, 610
frostbite, 2:873
heel spurs, 2:1029, 1030
Ford, John, 4:2040
Foremilk, 1:329
Formula, infant, 2:874; 4:2115–2116
Forskolin, 1:565–567
Forsythia, 1:590; 2:1187
Forteo (teriparatide), for osteoporosis, 3:1478
Fortical (calcitonin), for osteoporosis, 3:1666
Fortification of foods
calcium, 1:380
folic acid, 2:856, 857
golden rice, 4:2334
riboflavin, 3:1939
Fortune-teller. *See* Dandelion
49th Vibrational Technique, 1:578

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Fosamax (alendronate), for osteoporosis, 3:1478, 1666
Foscarnet, for Kaposi's sarcoma, 2:1259
Foundation for Allied Conservative Therapies Research, 1:128
The Foundation for Shamanic Studies, 4:2037
Foundations for Holistic Health Nursing Practices (Krieger), 4:2223
Four-fold nature of being, 1:103
Four humors, unani-tibbi and, 4:2289
Fourth International Scientific Symposium on Tea and Human Health, 4:2220
Foxglove. *See* Digitalis
Fox's clote. *See* Burdock root
Fractures, 2:**863–865**
  comfrey for, 1:587
  guggul for, 2:970
  homeopathy for, 2:1090
  horsetail for, 2:1106
  knee pain and, 2:1282
  osteoporosis and, 2:1210; 3:1662, 1664, 1666
  safflower in, 4:1967
  silica for, 4:2067
  wormwood for, 4:2396
Francis, T., Jr., 1:105
Frangula bark. *See* Buckthorn
Frank, Daniel N., 2:722
Frankincense. *See* Boswellia
Franklin, Benjamin, 3:1843
Frati-Munari, A. C., 3:1811–1812
Fraxinus americana, for worms, 4:2393
Free-radical theory of aging, 1:29
Free radicals
  antioxidants, 1:108
  bioflavonoids, 2:1058
  carotenoids, 1:404
  copper, 1:603, 604
  ischemia, 2:1223
  Lou Gehrig's disease, 3:1360, 1361
  lutein, 3:1374
  macular degeneration, 3:1401
  memory loss, 3:1461
  smoking, 4:2091
French E3N Study, 4:2093
French green clay, 1:602; 2:**865–868,** *866*
French lavender. *See* Lavender
French paradox, 2:961, 964; 3:1756, 1913
French sorrel. *See* Sheep sorrel
Frequent urination. *See* Urination, frequent
Fresh cell therapy. *See* Cell therapy
Freud, Sigmund
  anxiety, 1:114–115
  psychoanalysis, 3:1845, 1847
  psychosomatic medicine, 3:1843
Freudian psychotherapy, 2:657; 3:1848
Friar's cap. *See* Aconite
Friction
  in Russian massage, 3:1959
  in Swedish massage, 4:2173
  for temporomandibular joint syndrome, 4:2208
  for tendinitis, 4:2210
Friction blisters, 1:290, 291
Friedman, Frank, 2:1158, 1159
Friedman, Mark, 4:2040
Fritillaria, 1:619; 2:**869–871**
Fromm, Erich, 3:1845
Frostbite and frostnip, 2:*871,* **871–873,** 1120; 4:1984
Fructooligosaccharides, 2:**873–876;** 4:2188
Fructus aurantii. See Neroli
Fructus meliae toosendan, for pleurisy, 3:1768
Fructus quisqualis, for worms, 4:2393
Fructus Tritici, 1:174
Fruits
  anti-inflammatory diet, 1:106
  bioflavonoids in, 1:246, 247
  for cirrhosis, 1:547
  Diamond diet, 2:693
  hypoglycemia and, 2:1147
  jaundice and, 2:1235
  Mediterranean diet, 3:1455
  See also specific types
Fryman, Viola M., 1:628
FSH. *See* Follicle-stimulating hormone
FTC (Federal Trade Commission), 2:783
Fu Ling, 1:174
Fu Xiao Mai, 1:174
Fu Zi. *See* Aconite
Fu Zi Li Zhong Wan, 2:698; 4:2144
Fuchs, Leonhard, 2:1049
Fucoidan, in bladderwrack, 1:287
Fucus. See Bladderwrack; Iceland moss; Kelp
Full-spectrum light therapy, 3:1344, 1344*t*
Fulvestrant, for breast cancer, 1:326
Functional bowel disorder. *See* Irritable bowel syndrome
Functional foods
  flaxseed, 2:846
  fructooligosaccharides, 2:874
  glucosamine, 2:936
  for weight loss, 3:1625
  wild oat, 4:2385
Functional incontinence, 4:2290, 2291*t*
  See also Urinary incontinence
Functional indigestion, 2:1168
  See also Indigestion
Functional integration, Feldenkrais method, 2:820
Fundus examinations, for retinopathy, 3:1918
Fungal infections, 2:**876–878**
  AIDS and, 1:34
  ashwaganda for, 1:152
  barberry for, 1:202
  black cumin seed extract for, 1:273
  burdock for, 1:359
  cedarwood for, 2:1176
  cnidium seeds for, 1:551
  cornus for, 1:613
  cyperus for, 1:651
  garlic for, 2:895
  gentiana for, 2:916
  grains-of-paradise for, 2:959
  grape skin for, 2:964
  grapefruit seed extract for, 2:965, 966
  hair loss and, 2:983
  hops for, 2:1100
  kava kava for, 2:1260
  lemongrass for, 3:1328
  magnolia for, 3:1410
  myrrh for, 3:1561
  neem for, 3:1588, 1589
  oregano, 3:1640
  oregano for, 3:1639, 1640
  oxygen therapy for, 3:1680
  peppermint for, 3:1731
  phytolacca for, 3:1748
  psoralea seeds for, 3:1834
  red cedar for, 3:1889
  rosemary for, 3:1951
  scallion for, 4:1984
  silver for, 1:573
  sinus infections and, 4:2068, 2070
  tea tree oil for, 4:2198
  thuja for, 4:2231
  usnea for, 4:2298
  See also Yeast infections
Fungi, usnea and, 4:2296–2297
Fungicides. *See* Antifungal agents
Fungus japonicus, in kombucha, 2:1289
Furanosesquiterpenes, in bitters, 1:266
Furchgott, Robert F., 1:131
Furocoumarins, 1:87, 266
Furumoto, Phyllis Lei, 3:1900
Furuncles. *See* Boils
Furunculosis, 1:303
Fusion inhibitors, for AIDS, 1:37
Future Harvest (organization), 4:2254

G

Gabapentin
  epilepsy, 2:778
  migraine, 3:1501
  neuralgia, 3:1597
GABHS pharyngitis. *See* Strep throat

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Gagroot. *See* Lobelia
GAGs. *See* Glycosaminoglycans
Gaiter berries. *See* Cramp bark
Galactogogues
  codonopsis root, 1:554
  fennel, 2:824
  fenugreek, 2:826
  grains-of-paradise, 2:959
  nettle, 3:1591
  ophiopogon, 3:1637, 1638
  raspberry, 3:1883
  squawvine, 4:2129
  wintergreen, 4:2387
  See also Breast-feeding
Galangal, 2:783; 4:2358
Galbanum, for stomachaches, 4:2143
Gale beer, 1:209
Galen (physician)
  apitherapy, 1:119
  herbal medicine, 2:1049
  hyssop, 2:1152
  mind/body medicine, 3:1839
  oak, 3:1619
  trepanation, 4:2265
  valerian, 4:2311
  white willow, 4:2375
Galenicals, 2:1049
Galium species. *See* Cleavers
Gall bladder disorders
  coptis for, 1:606
  dandelion for, 2:659
  devil's claw for, 2:681
  pennyroyal for, 3:1726
  red clover for, 3:1891
Gall weed. *See* Gentiana
Galland, Leo, 2:723
Gallbladder disorders
  indigestion and, 2:1168
  milk thistle for, 3:1502–1503
  pancreatitis and, 3:1692
  peppermint for, 3:1729
  turmeric for, 1:642
  vitamin C for, 4:2342
  wormwood for, 4:2396
  yellow dock for, 4:2406
  yucca for, 4:2418
Gallstones, 2:**879–881**
  chelidonium for, 1:466–467
  chicory for, 1:481, 482
  Crohn's disease and, 1:632
  juniper for, 2:1249
  lacto-ovo vegetarianism for, 3:1302
  peppermint for, 3:1731
  turmeric for, 4:2280
  veganism for, 4:2319
  vegetarianism for, 4:2326
Gallup, 3:1795
Galvanic skin response (GSR) sensors, 1:244
Gambodia. *See* Garcinia
Gamboge. *See* Garcinia
Gamete intrafallopian transfer (GIFT), 2:1182
Gamma globulin, for chronic fatigue syndrome, 1:534
Gamma-glutamylcysteineglycine. *See* Glutathione
Gamma-linolenic acid (GLA), 2:**881–885**
  in black currant seed oil, 1:274, 275
  in borage, 1:310, 311
  for juvenile rheumatoid arthritis, 2:1253
  for peripheral neuropathy, 3:1734
  premenstrual syndrome and, 3:1806
  sources, 2:784
  in spirulina, 4:2123
Gamma-oryzanol
  gastritis, 2:902
  in naturopathic medicine, 3:1581
  peptic ulcers, 4:2285
  systemic lupus erythematosus, 4:2188
Gan Cao. *See* Licorice
Gan jiang. *See* Ginger
Gan t'sao. *See* Licorice
Ganciclovir, for Kaposi's sarcoma, 2:1259
Gangrene, 2:**885–887;** 3:1435
Ganoderma, 2:*887,* **887–890,** *888*
  See also Reishi mushroom
Garcinia, 2:**890–892,** *891;* 4:2393
Garcinia mangostana. See Mangosteen
Gardasil vaccine, 1:451
Garden angelica. *See* Angelica
Garden marigold. *See* Calendula
Garden mint. *See* Spearmint
Garden parsley. *See* Parsley
Garden sage. *See* Sage
Garden sorrel. *See* Sheep sorrel
Garden thyme. *See* Thyme
Gardenia, 1:548; 2:**892–894**
Gardening. *See* Farming and gardening
Gargles
  with bayberry, 1:208, 209
  with calendula, 1:382
  with French green clay, 2:868
  for laryngitis, 3:1308, 1309
  with lysimachia, 3:1391
  with myrrh, 3:1561
  with sage, 4:1970
  for sore throat, 4:1987, 1988, 2106
  for strep throat, 4:2148, 2149
  with tea tree oil, 4:2198
  with wintergreen, 4:2387
  with witch hazel, 4:2390
  See also Mouthwashes; Saltwater gargles
Garlic, 2:**894–898**
  abscesses, 1:2
  aging, 1:30
  AIDS, 1:36
  angina, 1:91
  asthma, 1:156
  atherosclerosis, 1:166
  athlete's foot, 1:168
  bladder cancer, 1:281
  blood clots, 1:292
  bronchitis, 1:340
  chickenpox, 1:478
  chlamydia, 1:514
  cholesterol control, 1:519, 520
  common cold, 1:591
  corns and calluses, 1:610
  diabetes, 2:689
  diarrhea, 2:697
  ear infections, 2:733
  earaches, 2:736, 737
  emphysema, 2:754
  fungal infections, 2:877
  genital herpes, 2:911
  gonorrhea, 2:950
  heart attacks, 2:1012
  heart disease, 2:1018
  in herbal cold remedies, 2:1046, 1047
  infections, 2:1175
  inflammatory bowel disease, 2:1185
  as insect repellent, 2:1230
  ischemia, 2:1225
  kidney infections, 2:1274
  lead poisoning, 3:1318
  lice infestations, 3:1338
  Lyme disease, 3:1386
  measles, 3:1446
  Ménière's disease, 3:1466
  radiation injuries, 3:1876
  retinopathy, 3:1919
  rhinitis, 3:1928
  scarlet fever, 4:1987
  staphylococcal infections, 4:2136
  sties, 4:2141
  stomachaches, 4:2144
  strep throat, 4:2148, 2149
  strokes, 4:2157
  swimmer's ear, 4:2177
  trichomoniasis, 4:2268
  tuberculosis, 4:2276
  uterine cancer, 4:2300
  UTIs, 1:284
  vaginitis, 4:2309
  warts, 4:2363
  wheezing, 4:2372
  whooping cough, 4:2380
  worms, 4:2393
  yeast infections, 4:2404
Gas (gastrointestinal), 2:**898–900**
  activated charcoal for, 1:456, 457, 458
  anise for, 1:94
  boneset for, 1:306
  catnip for, 1:419
  chamomile for, 1:455
  coleus for, 1:566
  cyperus for, 1:651
  fennel for, 2:824

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Gas (gastrointestinal) *(continued)*
feverfew for, 1:536, 537
field mint for, 4:2117
garlic for, 2:896
gentiana for, 2:916
ginger for, 2:921
horehound for, 2:1102
hyssop for, 2:1152
ignatia for, 2:1157
juniper for, 2:1249
lavender for, 3:1311
lemon balm for, 3:1327
lemongrass for, 3:1329
lycopodium for, 3:1380, 1381
magnolia for, 3:1410
motherwort for, 3:1518, 1519
nutmeg for, 3:1610
parsley for, 3:1712
pennyroyal for, 3:1726–1727
peppermint for, 2:704; 3:1728, 1729, 1730
rosemary for, 3:1951
saffron for, 4:1967
sulfur for, 4:2163
tangerine peel in, 4:2196
thyme for, 4:2236, 2237
triphala for, 4:2272
valerian for, 4:2312
wormwood for, 4:2395
Gas gangrene, 2:885–886
Gastric acid, 1:233–234
Gastric lavage, 1:472; 2:861
Gastric ulcers. *See* Stomach ulcers
Gastritis, 2:**900–904**
chickweed for, 1:480
chicory for, 1:482
fenugreek for, 2:826
Iceland moss for, 2:1155
nux vomica for, 3:1617
passionflower for, 3:1715
plantain for, 3:1764
white peony root for, 4:2374
Gastrodia, 2:**904–906**
Gastroenteritis, 2:**906–909**
craniosacral therapy for, 1:627
Iceland moss for, 2:1155
magnolia for, 3:1410
manuka honey for, 3:1428
marsh mallow for, 3:1435
rhubarb for, 3:1934
Gastroesophageal reflux, 2:1021
See also Heartburn
Gastroesophageal reflux disease (GERD)
heartburn, 2:1021, 1024, 1025
hiatal hernia, 2:1022
indigestion, 2:1168, 1170
Gastrointestinal flora. *See* Intestinal flora
Gastrointestinal system
alcohol effect on, 1:42
systemic lupus erythematosus and, 4:2188
Gastrointestinal system diseases
acidophilus for, 1:4–5
activated charcoal for, 1:458
Allium cepa for, 1:58
aloe for, 1:61
belladonna for, 1:221
catnip for, 1:419
cat's claw for, 1:422
Chinese skullcap for, 4:2076
cinnamon for, 1:543
colonic irrigation for, 1:574–576
coptis for, 1:606–607
garlic for, 2:896
gas from, 2:899
goldenseal for, 2:948
grains-of-paradise for, 2:960
gymnema for, 2:980
hibiscus for, 2:1063
homeopathy for, 2:1094
honey for, 3:1427
juniper for, 2:1249
kola nuts for, 2:1287
lachesis for, 3:1300
lemongrass for, 3:1329
lysimachia for, 3:1390
magnolia for, 3:1410
marijuana for, 3:1432
marsh mallow for, 3:1435
myrrh for, 3:1561
neem for, 3:1588
neural therapy for, 3:1594
nutmeg for, 3:1610, 1611
ophiopogon for, 3:1637
osha for, 3:1653
probiotics for, 3:1819
raspberry for, 3:1883, 1884
red cedar for, 3:1889
rhodiola rosea for, 3:1931
schisandra for, 4:1990
shiatsu for, 4:2046
sulfur for, 4:2163
tangerine peel for, 4:2196
usnea for, 4:2298
vomiting and, 4:2357
yerba santa for, 4:2408
Gattefossé, René-Maurice, 1:138, 317; 2:787–788
Gaultheria species. *See* Wintergreen
Gay Men's Health Crises (GMHC), 2:1259
GB20 pressure point, 1:15
Ge-gen. *See* Kudzu
Gefilus, 3:1819
Gel electrophoresis, for sickle cell anemia, 4:2064
Gel products
aloe, 1:61
HIV prevention, 1:39
Gelsemium, 2:**909–910**
anxiety, 1:115
dizziness, 2:714
hay fever, 2:999
holistic dentistry and, 2:1077
in homeopathy, 2:1083*t*
influenza, 2:1188
measles, 3:1447
sore throat, 4:2106
Gem healing. *See* Crystal healing
Gene therapy
bladder cancer, 1:281
impotence, 2:1166
osteoarthritis, 3:1657
Parkinson's disease, 3:1708
retinopathy, 3:1919
sickle cell anemia, 4:2065
General paresis, from neurosyphilis, 4:2182
General symptoms (homeopathy), 2:1090, 1094
Generalized epileptic seizures, 2:776, 778
Generalized pustular psoriasis, 3:1836
Genetic theory of aging, 1:29
Genetics
allergies, 1:53
Alzheimer's disease, 1:65
ankylosing spondylitis, 1:96
asthma, 1:154
atherosclerosis, 1:166
autism, 1:189
bipolar disorder, 1:255–256
breast cancer, 1:322–323, 327
bulimia nervosa, 1:353
cancer, 1:383–384, 385, 386
celiac disease, 2:944
Charcot-Marie-Tooth syndrome, 3:1734
cirrhosis, 1:546
colitis, 1:569
colorectal cancer, 1:579
diabetes, 2:686
dyslexia, 2:725
ear infections, 2:732
eczema, 2:741
emphysema, 2:753
endometriosis, 2:758
essential tremor, 4:2262
glaucoma, 2:932–933
hearing loss, 2:1008
heart attacks, 2:1011
heart diseases, 2:1016
hemolysis, 2:1234
ischemia, 2:1223
jet lag, 2:1239
juvenile rheumatoid arthritis, 2:1251
leukemia, 3:1332, 1334
Lou Gehrig's disease, 3:1360
memory loss, 3:1462
migraine, 3:1499
motion sickness, 3:1521
multiple sclerosis, 3:1541
myopia, 3:1554
narcolepsy, 3:1563, 1564
night blindness, 3:1603
obesity, 3:1622

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

obsessive-compulsive disorder, 3:1628
ovarian cancer, 3:1668
pancreatitis, 3:1692
panic disorders, 3:1697
pneumonia, 3:1771
polycystic ovarian syndrome, 3:1675
prostate cancer, 3:1829
psoriasis, 3:1836
Raynaud's syndrome, 3:1886
rheumatoid arthritis, 3:1925
schizophrenia, 4:1993
scoliosis, 4:2003–2004
seasonal affective disorder, 4:2006
sickle cell anemia, 4:2061, 2062, 2065–2066
Sjögren's syndrome, 4:2071
stress response, 4:2151
systemic lupus erythematosus, 4:2187
Tourette syndrome, 4:2248
Geneva bugle weed. *See* Bugle weed
Genioplasty, for sleep apnea, 4:2081–2082
Genistein
endometriosis, 2:760
hot flashes, 2:1109
ipriflavone and, 2:1209, 1210
in kudzu, 2:1291
natural hormone replacement therapy and, 3:1573
in soy protein, 4:2115–2116
Genital herpes, 2:**910–913;** 4:2421
Genital ulcers, from syphilis, 4:2181
Genital warts, 2:**913–915,** *914;* 4:2231, 2232, 2361–2362, 2364
Genitourinary infections
probiotics for, 3:1306
thyme for, 4:2237
Gentamicin, for kidney infections, 2:1274
Gentian violet, for vaginitis, 4:2309
Gentiana, 2:**915–917**
anemia, 1:85
as flower remedy, 1:198; 2:850*t,* 851
hangovers, 2:988
hypoglycemia, 2:1146
prickly heat, 3:1809
shingles, 4:2053
Gentius (king), 2:916
Genu valgus, heel spurs and, 2:1029
Geography, multiple sclerosis and, 3:1542
Georgetown University, 1:121; 2:890; 3:1413
Geranium
dizziness, 2:714
eczema, 2:743
gastritis, 2:902
in hydrotherapy, 2:1121
jaundice, 2:1236
Ménière's disease, 3:1466
menstruation disorders, 3:1483
peptic ulcers, 4:2286
premenstrual syndrome, 3:1806
sore throat, 4:1987
varicose veins, 4:2317
Gerard, John
feverfew, 2:833
herbal medicine and, 2:1049
honeysuckle, 2:1098
hyssop, 2:1151
spearmint, 4:2118
GERD. *See* Gastroesophageal reflux disease
Gerda Alexander Eutony, 3:1526
Geriatric massage, 2:**917–918**
German chamomile, 1:454
See also Chamomile
German Commission E
Allium cepa, 1:58
angelica, 1:87
arnica, 1:135
artichoke, 1:149
black cohosh, 1:270; 2:1109; 3:1482
buchu, 1:347
bugle weed, 1:351
butcher's broom, 1:366–367
cayenne, 1:427
chelidonium, 1:466
coltsfoot, 1:586
cornsilk, 1:612
curcumin, 1:642
damiana, 2:653
elder flower, 2:747
ephedra, 2:771
eucalyptus, 2:793
euphrasia, 2:798
gentiana, 2:916
ginger, 2:922
goldenrod, 2:946
hawthorn, 2:996
herbal medicine regulation, 2:1052, 1053
hops, 2:1100
horehound, 2:1102
horsetail, 2:1106
juniper, 2:1249
khella, 2:1271
marsh mallow, 3:1435
mistletoe, 3:1511
motherwort, 3:1518
mullein, 3:1536
myrrh, 3:1561
parsley, 3:1712
passionflower, 3:1714, 1715
peppermint, 3:1730, 1731
plantain, 3:1764
psyllium, 3:1850
regulatory responsibility, 1:320
shepherd's purse, 4:2044
soy protein, 4:2115
valerian, 2:1195
white willow, 4:2376
wild oat, 4:2385
witch hazel, 4:2391
German measles. *See* Rubella
Germanium, 3:1333, 1371
Gerson, Max, 1:395; 2:919, 1246; 3:1787
Gerson Institute, 2:919, 920
Gerson therapy, 2:**919–920**
cancer and, 1:390, 395
juice therapy and, 2:1246, 1247, 1248
lung cancer and, 3:1371
as metabolic therapy, 3:1492
ovarian cancer and, 3:1671
Gestalt therapy, 3:1845, 1958
Gestational diabetes, 2:686; 3:1857
Gesundheit! (Adams), 2:1116
GFCO (Gluten-Free Certification Organization), 2:943
Ghee, for cuts and scratches, 1:648
Ghrelin, obesity and, 3:1626
Giant arborvitae. *See* Red cedar
Giant bullous emphysema, 2:753, 756
Giant diverticula, 2:709, 710
Giant hyssop. *See* Agastache; Hyssop
Giant red cedar. *See* Red cedar
Gibbons, Euell, 4:2089
Gibert, Camille, 3:1759
GIFT (gamete intrafallopian transfer), 2:1182
The Gift of Dyslexia (Davis), 2:727
Gilbert, Sir William, 3:1408
Gilbert's syndrome, ademetionine for, 3:1493
GIM (Guided Imagery and Music), 3:1552
Ginger, 2:**920–922**
atherosclerosis, 1:166
atractylodes with, 1:174
blood clots, 1:292
bursitis, 1:364
chemotherapy nausea, 1:325
chills, 1:496
chronic fatigue syndrome, 1:533
common cold, 1:590; 2:1046
digestion, 2:704
diverticulitis, 2:710
dizziness, 2:713
dry mouth, 2:721
fatigue, 2:816
frostbite, 2:873
gastritis, 2:903
hangovers, 2:988
hay fever, 2:999
heartburn, 2:1023
influenza, 2:1187
irritable bowel syndrome, 2:1220
juvenile rheumatoid arthritis, 2:1253
knee pain, 2:1282
laryngitis, 3:1308, 1309
low back pain, 3:1365
lymphomas, 3:1420
measles, 3:1446

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Ginger, 2:*920–922 (continued)*
menstruation disorders, 3:1482
migraine, 3:1500, 1501
morning sickness, 3:1517, 1799
motion sickness, 3:1521
nausea, 2:705; 3:1583
ovarian cancer, 3:1671
ovarian cysts, 3:1676
prickly heat, 3:1809
Raynaud's syndrome, 3:1887
rheumatoid arthritis, 3:1926
rubella, 3:1956
sore throat, 4:2106
stomachaches, 4:2143, 2144, 2145
strep throat, 4:2148
vomiting, 4:2358, 2359
wheezing, 4:2373
worms, 4:2393
Gingili. *See* Sesame oil
Gingivitis
defined, 2:976, *977*
echinacea for, 2:739
eucalyptus for, 2:793
grapefruit seed extract for, 2:965
green tea for, 2:968
manuka honey for, 3:1428
myrrh for, 3:1561
neem for, 3:1588
peppermint for, 3:1731
sage for, 4:1970
tea tree oil for, 4:2198
See also Gum diseases
Gingivostomatitis, 1:562
Ginkgo biloba, 2:**922–924**
ADHD, 1:176
aging, 1:30
Alzheimer's disease, 1:67
asthma, 1:156
atherosclerosis, 1:166
blood clots, 1:292
cerebral vascular insufficiency, 1:447
chronic fatigue syndrome, 1:533
dementia, 2:665–666
dermatitis, 2:674
diabetes, 2:689
dizziness, 2:713
hay fever, 1:55
hearing loss, 2:1009
impotence, 2:1165
ischemia, 2:1225
learning disorders, 3:1322
memory loss, 3:1463
Ménière's disease, 3:1466–1467
menopause, 3:1475
migraine, 3:1500
muscle cramps, 3:1550
myopia, 3:1555
peripheral neuropathy, 3:1734
phlebitis, 3:1740
Raynaud's syndrome, 3:1887
retinopathy, 3:1919
seniors, 4:2017
sexual dysfunction, 4:2032
skin cancer, 4:2074
sleep disorders, 4:2085
smoking cessation, 4:2090*t*, 2093
sunburn, 4:2168
tinnitus, 4:2242
wheezing, 4:2372
Ginkgolides, 2:922, 923
Ginseng
adrenal function and, 2:1043
diabetes, 2:689
hepatitis, 2:1039
in herbal cold remedies, 2:1046, 1047
infertility, 2:1181
insomnia, 2:1196
memory loss, 3:1463
menopause, 3:1475
multiple sclerosis, 3:1543
radiation injuries, 3:1876
schizophrenia, 4:1998
seniors, 4:2017
in Sun's soup, 4:2171
See also specific types of ginseng
Ginseng, American, 2:**924–926**
Ginseng, Korean. *See* Korean ginseng
Ginseng, Siberian. *See* Siberian ginseng
Ginseng Evaluation Program, 2:929, 931
Ginsenocides, 2:924, 928
GLA. *See* Gamma-linolenic acid
Glandular fever. *See* Mononucleosis
Glandular therapy. *See* Cell therapy
Glasser, William, 3:1845
Glasses (eye). *See* Eyeglasses
Glatiramer acetate, for multiple sclerosis, 3:1543
Glaucoma, 2:*932;* **2:932–935;** 2:*933*
bilberry for, 1:239
coleus for, 1:566
Gerson therapy for, 2:919
grape seed extract for, 2:961
marijuana for, 3:1432
meditation for, 3:1452
triphala for, 4:2272
GlaxoSmithKline, 1:451
Glazes, lead in, 2:716–717
Gleason tumor grading system, 3:1826
Gleevec, for leukemia, 3:1334
Gliomas, defined, 1:385
Global warming, airborne allergens and, 2:765
Glomerulations, interstitial cystitis and, 2:1202
Glossopharyngeal neuralgia, 3:1595, 1596
Glucagon, Zone diet and, 4:2423
Glucocorticoids, for juvenile rheumatoid arthritis, 2:1253
Glucomannan, 2:1200
Glucophage. *See* Metformin
Glucosamine, 2:**935–938**
chondroitin with, 1:524
interstitial cystitis, 2:1202
low back pain, 3:1365
mucopolysaccharides in, 3:1490–1491
osteoarthritis, 1:411, 524; 3:1656
pain, 3:1685
seniors, 4:2017
Glucosamine/Chondroitin Arthritis Intervention Trial, 1:524; 2:936; 3:1685
Glucose-6-phosphate dehydrogenase hemolysis, 2:1233, 1237
Glucose tablets, for hypoglycemia, 2:1146
Glucose tolerance tests
diabetes, 2:687
hypoglycemia, 2:1146
insulin resistance, 2:1199
polycystic ovarian syndrome, 3:1778
Glukos riza. *See* Licorice
Glutamic acid
gout, 2:957
Lou Gehrig's disease and, 3:1360, 1362
role, 1:74
Glutamine, 2:**938–939**
cataracts, 1:417
diarrhea, 2:697
gastritis, 2:902
inflammatory bowel disease, 2:1185
peptic ulcers, 4:2285
systemic lupus erythematosus, 4:2188
Glutathione, 2:**939–941**
ademetionine and, 3:1493
as antioxidant, 1:111
chemical poisoning and, 1:471
hay fever, 2:998
heavy metal poisoning, 2:1027
lead poisoning, 3:1319
radiation injuries, 3:1876
retinopathy, 3:1919
Gluten
autism, 1:190
celiac disease, 1:429, 431
Gluten-Free Certification Organization (GFCO), 2:943
Gluten-free diet, 1:430*t*, 431–432; 2:**941–945**
Gluten intolerance
gluten-free diet for, 2:941
lipase and, 3:1350–1351
Gluten Intolerance Group, 2:941, 943
Gluten sensitive enteropathy. *See* Celiac disease
Glycemic index
Shangri-la diet, 4:2039
South Beach diet, 4:2112–2113, 2114
Glycerin, for earache, 2:736

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Glyceryl trinitrate, for dysmenorrhea, 2:730
Glycine
cataracts, 1:417
gout, 2:957
overview, 1:74
Glycoproteins, in colostrum, 1:583
Glycosaminoglycans (GAGs)
cerebral vascular insufficiency, 1:447
chondroitin as, 1:523
cuts and scratches, 1:648
interstitial cystitis and, 2:1201, 1202
Glycose oxidase, honey and, 3:1427
Glycyrrhiza glabra. *See* Licorice
Glycyrrhizin, 2:662, 663
Glycyrrhizinic acid, for genital herpes, 2:912
GMHC (Gay Men's Health Crises), 2:1259
GMP. *See* Good Manufacturing Practices
GnRH (gonadotropin-releasing hormone), amenorrhea and, 1:71
GnRH antagonists, for uterine fibroids, 4:2303
Goatweed. *See* St. John's wort
Gobo. *See* Burdock root
Goethe, Johann Wolfgang von, 1:135; 2:849
Goiter
bladderwrack for, 1:287
fritillaria for, 2:869
hyperthyroidism and, 2:1138
iodine and, 2:1204, 1205
kelp for, 2:1269
pinellia for, 3:1757
sargassum seaweed for, 4:1975, 1976
Gold, Joseph, 1:390; 3:1671
Goldbloom. *See* Calendula
Golden bough. *See* Mistletoe
The Golden Fountain (van der Kroon), 4:2296
Golden lock tea, for urinary incontinence, 4:2293
Golden marguerite, 1:454–455
Golden rice, 4:2334
Goldenrod, 2:**945–948,** *946;* 4:2098, 2380
Goldenseal, 2:**948–949**
abscesses, 1:2
acne, 1:8
athlete's foot, 1:168
bedsores, 1:211
boils, 1:303
canker sores, 1:398
cervical dysplasia, 1:451
chickenpox, 1:478
chlamydia, 1:514
colorectal cancer, 1:580
common cold, 1:591
contact dermatitis, 1:602
cuts and scratches, 1:648
diarrhea, 2:698
ear infections, 2:733
earaches, 2:736
in escharotic treatment, 2:783
fungal infections, 2:877
gangrene, 2:886
gastritis, 2:902
gum diseases, 2:978
hay fever, 2:999
headaches, 2:1004
hearing loss, 2:1009
impetigo, 2:1163
infections, 2:1176
influenza, 2:1187
laryngitis, 3:1309
Lyme disease, 3:1386
malaria, 3:1416
measles, 3:1446
menstruation disorders, 3:1482
migraine, 3:1500
mononucleosis, 3:1515
parasitic infections, 3:1705
pelvic inflammatory disease, 3:1724
pneumonia, 3:1772
rashes, 3:1881
retinopathy, 3:1919
rhinitis, 3:1928
sinus infections, 4:2069
snoring, 4:2098
staphylococcal infections, 4:2136
sties, 4:2141
strep throat, 4:2148, 2149
tonsillitis, 4:2245
toxic shock syndrome, 4:2252
trichomoniasis, 4:2268
UTIs, 1:285
vaginitis, 4:2309
worms, 4:2393
Goldin, Barry, 3:1819
Golds. *See* Calendula
Goldthread. *See* Coptis
Golfer's elbow. *See* Tennis elbow
Gonadotropin-releasing hormone (GnRH), amenorrhea and, 1:71
Gong, W. C., 3:1812
Gonioscopy, 2:933
Gonorrhea, 2:**949–952**
colchicum for, 1:560
conjunctivitis and, 1:594, 595
epididymitis from, 2:774
goldenseal for, 2:948
horsetail for, 2:1106, 1107
juniper for, 2:1249
kava kava for, 2:1260
mangosteen for, 3:1425
marijuana for, 3:1432
pharyngeal, 4:2105
prince's pine for, 3:1814
uva ursi for, 4:2305
Gonzalez, Nicholas, 2:1266–1267
Good Health Magazine, 4:2325
Good Manufacturing Practices (GMP)
botanical medicines, 1:319
chondroitin and, 1:524–525
essential fatty acid supplements, 2:786
Good Morning America (television show), 4:2037
Goodheart, George G., 1:124–125, 127
Gorbach, Sherwood, 3:1819
Gordolobo. *See* Mullein
Gorran, Jody, 1:172
Gorse flower essence, 1:198; 2:850*t*, 851
Gossypium herbaceum. *See* Cotton root bark
Gosyuyu. *See* Evodia fruit
Gottlieb, Raymond L., 1:216
Gotu kola, 2:**952–955,** *953*
aging, 1:30
anxiety, 1:116
cellulite, 1:439
dementia, 2:665
headaches, 2:1004
memory loss, 3:1463
peripheral neuropathy, 3:1734
phlebitis, 3:1740
retinopathy, 3:1919
seniors, 4:2017
Gou Qi Zi. *See* Lycium fruit
Gout, 2:**955–958,** 955*t*
apitherapy for, 4:2331
boneset for, 2:797
chamomile for, 1:455
chicory for, 1:481
Chinese skullcap for, 4:2076
colchicum for, 1:560
devil's claw for, 2:680
fenugreek for, 2:826
goldenrod for, 2:947
horsetail for, 2:1106, 1107
ignatia for, 2:1157
juniper for, 2:1249, 1250
kava kava for, 2:1261
knee pain and, 2:1282
lacto-ovo vegetarianism for, 3:1302
ledum for, 3:1325
lycopodium for, 3:1380
mullein for, 3:1536
ox-eye daisy for, 1:536
pennyroyal for, 3:1726
quercetin for, 3:1865
red clover for, 3:1891
rosemary for, 3:1949
shiitake mushroom for, 4:2049
tangerine peel for, 4:2196
tea tree oil for, 4:2198
thyme for, 4:2236
traditional African medicine for, 4:2253
veganism for, 4:2319

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Gout *(continued)*
vegetarianism for, 4:2326
yucca for, 4:2418
Gower, Timothy, 1:75
Grace of God. *See* St. John's wort
Grades I/II/III sprains and strains, 4:2127–2128
Grains. *See* Whole grains
Grains-of-paradise fruit, 2:**959–960**
Gram stain tests, for gonorrhea, 2:950
Granadilla. *See* Passionflower
Grand Forks Human Nutrition Research Center, 1:313; 3:1423
Grand mal seizures, 2:779
Granisetron, for nausea, 3:1583
Granulocytes, leukemia and, 3:1331, 1332
Grape juice, for low back pain, 3:1365
Grape seed extract, 2:**960–963**
as antioxidant, 1:111
bursitis, 1:364
common cold, 1:591
dermatitis, 2:674
hay fever, 1:54
influenza, 2:1188
pain, 3:1684
radiation injuries, 3:1876
retinopathy, 3:1919
seniors, 4:2017
Grape skin, 2:**963–965;** 4:2276
Grapefruit seed extract, 2:**965–967**
dysbiosis, 2:723
food poisoning, 2:861
fungal infections, 2:877
impetigo, 2:1163
jock itch, 2:1240
pelvic inflammatory disease, 3:1724
trichomoniasis, 4:2268
yeast infections, 4:2404
Graphites
contact dermatitis, 1:602
rashes, 3:1882
swimmer's ear, 4:2177
Grapple plant. *See* Devil's claw
Grass-fed foods, 3:1643
Gravel root, 2:797, 1278
Graves' disease, 2:1138; 3:1383
Graviola leaf, in escharotic treatment, 2:783
Gray (radiation unit), 3:1872
Gray atractylodes, 1:173, 174
Graying of hair, biotin for, 1:253
Great burdock. *See* Burdock root
Great burr. *See* Burdock root
Great Herbal (Shiz-hen), 3:1856
Great morel. *See* Belladonna
Great mullein. *See* Mullein
Great Orange Peel Decoction, 4:2196
Greater celandine, 1:466–467
Greater dodder. *See* Cuscuta
Greater periwinkle. *See* Periwinkle
Greater plantain. *See* Plantain
Greater skullcap. *See* Skullcap
Green (color), 1:577, 578
Green, Alyce, 1:243
Green, Elmer, 1:243
Green, Peter H. R., 1:430
Green chiretta. *See* Andrographis
Green clay. *See* French green clay
Green dragon. *See* Pinellia
Green figs, for warts, 4:2363
Green light reflex, 4:2103
Green mist lace. *See* Khella
Green onion. *See* Scallion
The Green Pharmacy (Duke), 3:1330; 4:2029
Green tea, 2:*967*, **967–970**
aging, 1:30
angina, 1:91
anxiety, 1:116
cervical dysplasia, 1:451
colorectal cancer prevention, 1:581–582
dermatitis, 2:674
dry mouth, 2:721
heart attacks, 2:1012
heart disease, 2:1018
in herbal cold remedies, 2:1046
nausea, 3:1583
polycystic ovarian syndrome, 3:1779
retinopathy, 3:1919
Green Unicorn Pill, 1:285
Greenstick fractures, defined, 2:863
See also Fractures
Grieve, Maude, 3:1933; 4:2089, 2279
Griffonia simplicifolia, 2:671, 844
See also 5-HTP
Grifola frondosa. *See* Maitake
Grindelia, 1:636; 2:674
Grinder, John, 3:1598
Grippe. *See* Influenza
Groats. *See* Wild oat
Grof, Christina, 1:331
Grof, Stanislav, 1:331
Grof Transpersonal Training, 1:333
Gross total incontinence, 4:2291*t*
Ground berry. *See* Wintergreen
Ground holly. *See* Prince's pine
Ground raspberry. *See* Goldenseal
Group A streptococcal bacteria
rheumatic fever and, 3:1920
scarlet fever from, 4:1986
strep throat from, 4:2146
toxic shock syndrome and, 4:2251
Group therapy
art therapy and, 1:147
overview, 3:1846, 1848
for substance abuse, 4:2161
See also Psychotherapy
Growth factors, in colostrum, 1:583
Growth hormone, in colostrum, 1:583
sGrub-byed (Tibetan medicine), 4:2239
gSoba Rig-pa. *See* Tibetan medicine
Guan Zhong, for worms, 4:2393
Guanfacine, for Tourette syndrome, 4:2250
Guar gum, for insulin resistance, 2:1200
Guarani people, stevia use, 4:2138
Guelder rose. *See* Cramp bark
Guggal gum/resin. *See* Myrrh
Guggul, 2:**970–971**
boswellia, 1:314
heart attacks, 2:1012
Ménière's disease, 3:1466
Guggulsterone, 2:970
Gugulipids. *See* Myrrh
Gui Pi Tang, 1:179
Gui Zhi. *See* Cinnamon bark
Guided imagery, 2:**971–974**
bone spurs, 1:309
breast cancer, 1:324
burns, 1:362
childbirth, 1:485
cirrhosis, 1:547
colorectal cancer, 1:580
Crohn's disease, 1:633
diverticulitis, 2:710
endometriosis, 2:760
fatigue, 2:816
fibromyalgia, 2:839
hangovers, 2:988
heel spurs, 2:1029
Hodgkin's disease, 2:1074
insomnia, 2:1195
irritable bowel syndrome, 2:1221
kidney stones, 2:1278
leukemia, 3:1334
low back pain, 3:1366
lung cancer, 3:1372
Lyme disease, 3:1386
lymphomas, 3:1420
as mind/body medicine, 3:1508
muscle cramps, 3:1550
neuralgia, 3:1597
ovarian cancer, 3:1670
pain, 3:1686
past life therapy and, 3:1717
pneumonia, 3:1772
pregnancy, 3:1800
prostate cancer, 3:1827
prostate enlargement, 3:1831
radiation injuries, 3:1876
as relaxation therapy, 3:1906
rheumatoid arthritis, 3:1926
sties, 4:2141
stress, 4:2151
strokes, 4:2156
substance abuse, 4:2161
syphilis, 4:2184
systemic lupus erythematosus, 4:2188
Tourette syndrome, 4:2250
trichotillomania, 2:984
warts, 4:2363

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Guided Imagery and Music (GIM), 3:1552
Guild for Structural Integration, 3:1941, 1942, 1943
Guillain-Barré syndrome, 3:1734, 1735
Guinea grains. *See* Grains-of-paradise fruit
Guinea rush. *See* Cyperus
Gulf War syndrome, 2:**974–976**
  environmental therapy for, 2:765
  exercise for, 2:804
  homeopathy for, 2:1094
  multiple chemical sensitivity and, 3:1538
Gulfweed. *See* Sargassum seaweed
Gum. *See* Myrrh
Gum, chewing, for heartburn, 2:1024
Gum bush. *See* Yerba santa
Gum diseases, 2:**976–979,** *977*
  calcium for, 1:379
  cerebral palsy and, 1:444–445
  coenzyme Q10 for, 1:555, 556
  eucalyptus for, 2:793
  goldenseal for, 2:948
  green tea for, 2:968
  kava kava for, 2:1261
  manuka honey for, 3:1428
  myrrh for, 3:1561
  neem for, 3:1588
  periwinkle for, 3:1736
  selenium for, 4:2011
  sesame oil for, 4:2030
  thyme for, 4:2236
  usnea for, 4:2298
Gum flap surgery, 2:978
Gum plant. *See* Comfrey
Gummigutta. *See* Garcinia
Gunshot wounds, lead poisoning and, 3:1317
Gurmabooti. *See* Gymnema
Gurmar. *See* Gymnema
Gut permeability. *See* Leaky gut syndrome
Gutta gamba. *See* Garcinia
Gutta-percha tree. *See* Eucommia bark
Guttate psoriasis, 3:1836
GW 8510 (hair loss gel), 2:983
Gyen-rgyu (Tibetan medicine), 4:2239
Gymnema, 2:**979–981**
  diabetes, 2:689, 980, 981
  polycystic ovarian syndrome, 3:1779
Gynecological disorders. *See* Reproductive system disorders
The Gynecological Sourcebook (Rosenthal), 4:2268, 2309, 2310
Gypsy rhubarb. *See* Burdock root
Gypsy weed. *See* Bugle weed
Gypsywort. *See* Bugle weed; Lycopus

H

H2 blockers. *See* Histamine receptor blockers
H2 receptor agonists, for stomachaches, 4:2144
HA-MRSA (hospital-acquired methicillin-resistant *Staphylococcus aureus*), 2:1175
HAART (highly active anti-retroviral therapy), 1:39
Hab Al Baraka. *See* Black cumin seed extract
Hachimijiogan, for cataracts, 1:417
Hackett, George, 3:1823
Hacking, in Swedish massage, 4:2173
Hackmatack. *See* Thuja
Hadassah University Hospital, 4:2240
Haemophilus influenzae type B
  ear infections from, 2:732, 735
  meningitis from, 3:1470, 1472
  sinus infections and, 4:2068
Hag's taper. *See* Mullein
Hahnemann, Samuel
  bryonia proving, 1:345
  calcarea carbonica, 1:376, 377
  founding of homeopathy, 1:317; 2:1050, 1085, 1086, 1089
  Hepar sulphuris, 2:1034
  ledum proving, 3:1324
  mercurius vivus and, 3:1484, 1485
  miasms theory and, 2:1094
  natrum muriaticum, 3:1567–1568
  proving, 1:433
  pulsatilla, 3:1852
  sepia, 4:2027
  silica proving, 4:2067
  syphilis, 4:2184
  trituration, 1:376
Hahnemann Medical Clinic, 2:1088, 1092, 1096
Hai zao. *See* Sargassum seaweed
Hair analysis
  detoxification, 2:678
  environmental therapy, 2:766
  holistic dentistry, 2:1079
Hair care
  biotin for, 1:253
  chamomile for, 1:455
  horsetail for, 2:1106
  jojoba oil for, 2:1242
  lemongrass, 3:1329
  for lice infestations, 3:1338–1339
  nettle for, 3:1592
  parsley for, 3:1713
  prickly pear cactus for, 3:1812
  rosemary for, 3:1951
  sage for, 4:1970
  See also Shampoos
Hair loss, 2:**983–985**
  arnica for, 1:135
  cuscuta for, 1:645
  hibiscus for, 2:1064
  horsetail for, 2:1107
  kelp for, 2:1269
  magnolia for, 3:1410
  psoralea seeds for, 3:1834
  thuja for, 4:2232
  thyme for, 4:2237
Hairy leukoplakia of the tongue, 1:35
Haizao yuhu tang, for goiter, 4:1976
Hakuch. *See* Psoralea seeds
Haldi. *See* Turmeric
Haldol (haloperidol), for Tourette syndrome, 4:2250
Hale, D.B., 1:60
Halitosis, 2:**985–986**
  anise for, 1:94
  bayberry for, 1:209
  grapefruit seed extract for, 2:965
  green tea for, 2:968
  myrrh for, 3:1561
  noni for, 3:1605
  nutmeg for, 3:1610
  parsley for, 3:1712
  peppermint for, 3:1731, 1732
Hallett Center for Diabetes and Endocrinology, 2:1099
Hallucinations, schizophrenia and, 4:1994
Hallucinogenic drugs
  abuse of, 4:2158, 2160
  yohimbe as, 4:2415, 2416
Halofantrine, for malaria, 3:1417
Haloperidol, for Tourette syndrome, 4:2250
Halprin, Anna, 3:1525
Halvorson, Peter, 4:2265, 2266
Hamamelis virginiana. See Witch hazel
Hambrecht, Rainer, 1:75
Han dynasty, food cures and, 1:501
Hand-foot syndrome, sickle cell anemia and, 4:2063
Hand warts, 4:2361, *2362*
Handicapped people. *See* Disabilities
Hangnails. *See* Ingrown nails
Hangovers, 2:**986–989**
  artichoke for, 1:149
  bitters for, 1:267
  evening primrose oil for, 2:800
  lobelia for, 3:1354
  motion sickness and, 3:1520
  nux vomica for, 3:1616, 1617
  skullcap for, 4:2075
Hanna, Thomas, 3:1523; 4:2102, 2104
Hanna Somatic Education. *See* Somatics
Hao-shu. *See* Mugwort
Happy major. *See* Burdock root
Hard measles. *See* Measles

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Hardening of the arteries. *See* Atherosclerosis
Hardock. *See* Burdock root
Hardy rubber tree. *See* Eucommia bark
Hare Krishna movement, 1:236
Hareburr. *See* Burdock root
Hare's ear. *See* Chinese thoroughwax
Harich, Jacob, 2:965
Haritaki fruit, in triphala, 4:2271
Harner, Michael, 4:2037
Harpagophytum procumbens. *See* Devil's claw
Harpagoside, in devil's claw, 2:682
Harper, Susan, 3:1526
Harris Interactive, 4:2319
Hart's tree. *See* Sweet clover
Hartshorn. *See* Buckthorn
Harvard Health Letter, 2:1071
Harvard Mind/Body Medical Institute, 3:1506
Harvard University
allergens, 2:765
Alzheimer's disease, 1:65
curcumin, 1:642
exercise, 2:806
glucosamine, 2:936
guided imagery, 2:973
kudzu, 2:1292
lice infestations, 3:1340
Mediterranean diet, 3:1454
nutrition recommendations, 3:1614
strokes, 4:2157
yoga study, 1:237
Hashimoto Hakaru, 2:989
Hashimoto's thyroiditis, 2:**989–992,** 1148; 4:1975
Hashish. *See* Marijuana
Hatha yoga, 2:**992–995**
as exercise, 2:804
neck pain, 3:1586
overview, 4:2412–2413
Hatshepsut (queen), 3:1560
Havrix hepatitis vaccine, 2:1040
Hawaiian Lomilomi Association, 3:1359
Hawaiian massage. *See* Lomilomi
Hawrelak, Jason A., 2:722
Hawthorn, 2:*995*, **995–997**
angina, 1:91
atherosclerosis, 1:166
heart attacks, 2:1012
heart disease, 2:1018
ischemia, 2:1225
menopause, 3:1475
migraine, 3:1500
osteoarthritis, 3:1656
premenstrual syndrome, 3:1805
skin cancer, 4:2074
smoking cessation, 4:2090*t*, 2093
in Sun's soup, 4:2171
Hawthorn Extract Randomized Blinded Chronic Heart Failure (HERB CHF) trial, 2:996
Hay fever, 2:**997–1000,** 997*t*
arsenicum album for, 1:144
bee pollen for, 1:215
bromelain for, 1:338
Chinese skullcap for, 4:2076
ephedra for, 2:771
eyebright for, 2:807
feverfew for, 2:833
ganoderma for, 2:888
goldenrod for, 2:946
lomatium for, 3:1356, 1357
natrum muriaticum for, 3:1569
nettle for, 1:494; 3:1592
nux vomica for, 3:1617
quercetin for, 3:1866
traditional African medicine for, 4:2253
treatment, 1:54–55
vitamin C for, 4:2341*t*
Hay flower. *See* Sweet clover
Hayashi, Chujiru, 3:1899
HBOT. *See* Hyperbaric oxygen therapy
hCG (human chorionic gonadotropin), 3:1798
HDL (high-density lipoprotein) cholesterol. *See* High-density lipoprotein cholesterol
He shou wu. *See* Fo ti
Head, Sir Henry, 3:1896
Head cancer, immuno-augmentation therapy and, 2:1160
Head lice. *See* Lice infestations
Headaches, 2:*1001*, **1001–1006,** 1002*t*
American ginseng for, 2:924
apple cider vinegar for, 1:123
arsenicum album for, 1:145
belladonna for, 1:222
biofeedback for, 1:242, 243; 3:1507
black cumin seed extract for, 1:273
chamomile for, 1:455
chrysanthemum for, 1:535
codonopsis root for, 1:553
compresses for, 2:1122
craniosacral therapy for, 1:627
cyperus for, 1:651
devil's claw for, 2:680, 681
evodia fruit for, 2:801
eyebright for, 2:807
facial massage for, 2:809, 811
feverfew for, 1:536
5-HTP for, 2:844
gardenia for, 2:893, 894
gastrodia for, 2:905
geriatric massage for, 2:917
ginkgo for, 2:922
grape seed extract for, 2:961
homeopathy for, 2:1094
hypnotherapy for, 2:1141
ignatia for, 2:1157, 1158
Jamaican dogwood for, 2:1231
kava kava for, 2:1260
kudzu for, 2:1291
lachesis for, 3:1300
lavender for, 3:1311, 1312
lemon balm for, 3:1326
lemongrass for, 3:1329
massage therapy for, 3:1440
McDougall diet for, 3:1443
mesoglycan for, 3:1490
mullein for, 3:1536
myotherapy for, 3:1558
natrum muriaticum for, 3:1569
neural therapy for, 3:1594
noni for, 3:1605
nux vomica for, 3:1616, 1617
oregano for, 3:1639
peppermint for, 3:1729, 1732
prolotherapy for, 3:1823, 1824
pulsatilla for, 3:1852, 1854
qigong for, 3:1859
rhus toxicodendron for, 3:1936
Rosen method for, 3:1953
Russian massage for, 3:1959
ruta for, 3:1961
scallion for, 4:1984
sesame oil for, 4:2029
shiitake mushroom for, 4:2049
skullcap for, 4:2075
stevia for, 4:2138
sulfur for, 4:2162, 2163
Swedish massage for, 4:2172, 2174
Thai massage for, 4:2218
therapeutic touch for, 4:2223, 2224
thuja for, 4:2231, 2232
trigger point therapy for, 4:2270
usnea for, 4:2298
valerian for, 4:2312
white willow for, 4:2375, 2376
wild oat for, 4:2385
witch hazel for, 4:2389
Headaches (journal), 3:1824
HeadOn Headaches formula, 3:1685
Headsman. *See* Plantain
Heal-all, for itching, 2:1229
Healing and the Mind (television series), 3:1506
The Healing Art of T'ai Chi (Lee), 4:2191, 2192
Healing crises
anthroposophical medicine, 1:104
biological cancer treatment, 1:396
detoxification, 2:679–680
environmental therapy and, 2:767
fasting and, 2:814
Gerson therapy, 2:920
holistic medicine, 2:1081–1082
homeopathy, 2:1087, 1091, 1094–1095
natural hygiene diet, 3:1577
Healing herb. *See* Comfrey
The Healing Herbs (Castleman), 1:269, 270; 2:921

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Healing imagery, 2:972
Healing Yourself: A Step-by-Step Program for Better Health Through Imagery (Rossman), 2:973
Health and Rejuvenation Research Center (HRRC), 1:424
Health Canada, 2:772, 783, 1261
Health care costs
acupressure, 1:14
acupuncture, 1:18–19, 187
ademetionine, 1:21
alcohol-related incidents, 1:41
Alexander technique, 1:47
Alzheimer's disease, 1:65, 68–69
analgesics, 3:1685
anthroposophical medicine, 1:104
apitherapy, 4:2331
aromatherapy, 1:140
auditory integration training, 4:2110
aura therapy, 1:184
auriculotherapy, 1:187
Ayurvedic medicine, 1:195
Bach flower essences, 1:197
Bach flower remedies, 2:852; 3:1909
bee pollen, 1:215
Buteyko training, 1:370
cancer, 1:383
chromium supplements, 1:530
cirrhosis, 1:545
coenzyme Q10, 1:556
colonic irrigation, 1:576
common cold, 1:589
contact dermatitis, 1:601
dementia, 2:664
depression, 2:668
detoxification, 2:679
EECP, 1:92
environmental therapy, 2:766
French green clay, 2:866
gamma-linolenic acid supplements, 2:884
Gerson therapy, 2:919, 1247
gluten-free diet, 1:431
hangovers, 2:986
Hellerwork, 2:1031
holistic dentistry, 2:1079
homeopathy, 2:1087
immuno-augmentation therapy, 2:1160
juicers, 4:2015
light boxes, 3:1345
low back pain, 3:1363
magnetic therapy, 3:1408
martial arts, 3:1438
massage therapy, 3:1441
McDougall diet, 3:1443
Native American medicine, 3:1566
panchakarma, 3:1690
pelvic muscle trainers, 2:1265
Pilates, 3:1751
pneumonia, 3:1770
prolotherapy, 3:1823
qigong, 3:1861
radionics, 3:1879
reiki, 3:1901
Rolfing, 3:1942
Rosen method, 3:1953
schizophrenia, 4:1992–1993
Shangri-la diet, 4:2040
somatics, 4:2103
strokes, 4:2153
substance abuse, 4:2158
Sun's soup, 4:2171
thuja, 4:2232
trepanation, 4:2266
trigger point therapy, 4:2270
unani-tibbi, 4:2289
yoga, 2:995; 4:2413
yohimbe, 4:2416
Health Education Authority Guide to Complementary Medicine and Therapies (Woodham), 1:208
Health Information for International Travel (CDC), 3:1459
Health insurance
acupressure, 1:14
acupuncture, 1:18–19
Alexander technique, 1:47
anthroposophical medicine, 1:104
apitherapy, 4:2331
applied kinesiology, 1:127
auriculotherapy, 1:187
Ayurvedic medicine, 1:195
chiropractic, 1:507
cholesterol tests, 1:519
craniosacral therapy, 1:627
energy medicine, 2:762
enhanced external counterpulsation, 1:92
environmental therapy, 2:766
geriatric massage, 2:918
holistic dentistry, 2:1079
holistic medicine, 2:1082
homeopathy, 2:1087
massage therapy, 3:1439, 1441, 1960
panchakarma, 3:1690
pelvic muscle trainers, 2:1265
Pilates, 3:1751
polarity therapy, 3:1775
psychotherapy, 3:1848
reiki, 3:1901
somatics, 4:2103
Health Psychology (journal), 4:2023
Health Science (magazine), 3:1575
HealthInform: Essential Information on Alternative Health Care (journal), 1:132
Healthy Heart diet, 2:1015*t*
Healthy Schools Summit of 2002, 1:491; 4:2201
Hearing
cuscuta and, 1:645
vs. listening, 1:180
overview, 2:1006
Hearing aids, 2:1009; 3:1467
Hearing loss, 2:**1006–1010,** 1007*t*
chrysanthemum for, 1:535
cornus for, 1:613
ear infections and, 2:731, 734
homeopathy for, 2:1094
magnesium for, 3:1406
Ménière's disease and, 3:1465, 1466, 1467
tinnitus and, 4:2241, 2243
vitamin D for, 4:2347
Hearing tests
auditory integration training and, 1:180
ear infections, 2:733
hearing loss, 2:1008
Ménière's disease, 3:1465
tinnitus, 4:2242
Hearst Publications, 2:1113
Heart attacks, 2:**1010–1015**
angina and, 2:1222
atherosclerosis and, 1:165
carnitine for, 1:402
hawthorn for, 2:996
high sensitivity C-reactive protein test and, 2:1071
HRT and, 3:1665
marijuana and, 3:1433
meditation for, 3:1449
Mediterranean diet for, 3:1454
veganism and, 4:2320
vegetarianism for, 4:2326, 2328
white willow for, 4:2376
Heart chakra, 1:453
Heart diseases, 2:**1015–1021,** 1015*t*, 1016*t*
alcohol and, 1:42
arginine for, 1:75
astralagus for, 1:164
bioflavonoids for, 2:1058–1059
bugle weed for, 1:351
carnitine for, 1:402
cayenne for, 1:427
cholesterol and, 1:518, 519, 521
chromium and, 1:529
coenzyme Q10 for, 1:555, 556
colostrum for, 1:584
craniosacral therapy for, 1:627
dance therapy for, 2:657
ferrum phosphoricum for, 2:828
fish oil for, 2:841
garlic for, 2:895
Gerson therapy for, 2:919
grape skin for, 2:964
hawthorn for, 2:995
hesperidin for, 2:1058–1059
high sensitivity C-reactive protein test and, 2:1069–1070, 1071
homeopathy for, 2:1086
ignatia for, 2:1157
lacto-ovo vegetarianism for, 3:1302, 1303
lemon balm for, 3:1326
linoleic acid for, 3:1348

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Heart diseases *(continued)*
lobelia for, 3:1355
low fat diets and, 3:1817
lycopodium for, 3:1380
lycopus for, 3:1383
macrobiotic diet for, 3:1397
meditation for, 3:1450
Mediterranean diet for, 3:1454
mistletoe for, 3:1510
motherwort for, 3:1518, 1519
natural hormone replacement therapy for, 3:1570
niacin for, 3:1580
omega-3 fatty acids for, 3:1631
ophiopogon for, 3:1637, 1638
Ornish diet for, 3:1645–1647
osteopathy for, 3:1658
panchakarma for, 3:1689
peppermint for, 3:1731
pine bark extract for, 3:1756
potassium for, 3:1789
Pritikin diet for, 3:1815–1817
pyridoxine for, 3:1857; 4:2338
qigong for, 3:1859
quercetin for, 3:1865, 1866
reishi mushroom for, 3:1903
from rheumatic fever, 3:1921–1922, 1924
rheumatic fever and, 4:2147–2148
safflower for, 4:1966
soy protein for, 4:2115
stevia for, 4:2138
thuja for, 4:2231
valerian for, 4:2312
veganism for, 4:2319
vegetarianism for, 4:2326, 2328
vitamin C for, 4:2343
vitamin E for, 4:2350–2351
yoga for, 2:993
Zone diet and, 4:2423, 2425
See also specific diseases

Heart failure
digitalis for, 2:707
edema from, 2:745
hawthorn for, 2:996
juniper for, 2:1249
See also Chronic heart failure

Heart Failure Society of America, 2:996

Heart Outcomes Prevention Evaluation (HOPE), 4:2350–2351

Heart rate sensors, for biofeedback, 1:244

Heart-thread lotus leaf. *See* Andrographis

Heart Wire (on-line publication), 2:996

Heartburn, 2:**1021–1026**
acidophilus for, 3:1305
cinnamon for, 1:543
coptis for, 1:607
demulcent herbs for, 2:704–705
devil's claw for, 2:681
gentiana for, 2:916
grains-of-paradise for, 2:960
hiatal hernia and, 2:1022, 1060
juniper for, 2:1249
licorice for, 3:1342
peppermint for, 3:1729
psyllium for, 3:1850
stevia for, 4:2138
wormwood for, 4:2395
See also Gastroesophageal reflux

Heartsease. *See* Pansy

Heartwort. *See* Motherwort

Heat, edema from, 2:745

Heat rash. *See* Prickly heat

Heat syndromes, in traditional Chinese medicine, 2:832

Heat therapy. *See* Diathermy

Heather flower essence, 1:198; 2:850*t*, 851

Heavenly hemp. *See* Gastrodia

Heavy menstrual bleeding. *See* Menorrhagia

Heavy metal poisoning, 2:1026–1028, **1026–1028**
cadmium poisoning, 1:371–372
detoxification for, 2:677
environmental therapy and, 2:766
garlic for, 2:896
glutathione for, 2:940
holistic dentistry and, 2:1078
spirulina and, 4:2124
See also Lead poisoning

Heberden's nodes, 3:1654, 1657

Hedeoma pulegioides. *See* Pennyroyal

Hedge hyssop. *See* Hyssop

Heel spurs, 2:**1028–1030**

Heinerman, John, 3:1330

Heinerman's Encyclopedia of Healing Herbs and Spices (Heinerman), 3:1330

Heinrich Heine University, 2:697

Helenalin, in arnica, 1:136

Helichrysum, for cuts and scratches, 1:648

Helicobacter pylori infections
garlic for, 2:895
gastritis and, 2:900–904
indigestion and, 2:1168, 1169
itching and, 2:1227–1228
manuka honey for, 3:1428
peptic ulcers and, 2:921; 4:2283, 2285, 2286
probiotics for, 3:1819
rosacea and, 3:1944
spearmint for, 4:2119
stomachaches and, 4:2143, 2144

Heliotrope. *See* Valerian

Helixor. *See* Iscador

Heller, Joseph, 2:1030

Hellerwork, 2:**1030–1032**

Hellweed. *See* Cuscuta

Helmet flower. *See* Skullcap

Helminth infections. *See* Worms

Hematomas, defined, 1:343

Hematuria
bladder cancer and, 1:280
gardenia for, 2:894
hemorrhagic cystitis, 1:283–284
kidney stones and, 2:1277
notoginseng for, 3:1608
scallion for, 4:1984

Hemi-sync therapy, 4:2110

Hemiplegia, 1:442; 4:2156

Hemispherectomy, for epilepsy, 2:779

Hemochromatosis, 1:545
See also Cirrhosis

Hemodialysis. *See* Dialysis

Hemoglobin
iron, 2:1215–1216
jaundice, 2:1233
sickle cell, 4:2061, 2064

Hemolytic anemia, 1:83–84, 86

Hemolytic disorders, jaundice and, 2:1233–1234, 1236

Hemorrhage. *See* Bleeding

Hemorrhagic colitis, 2:858

Hemorrhagic cystitis, 1:283–284

Hemorrhagic gastritis, 2:901, 902
See also Gastritis

Hemorrhagic strokes, 4:2154, 2155
See also Strokes

Hemorrhoids, 2:**1032–1034**
ashwaganda for, 1:152
brewer's yeast for, 1:336
butcher's broom for, 1:367
codonopsis root for, 1:554
echinacea for, 2:739
French green clay for, 2:868
goldenrod for, 2:947
grape seed extract for, 2:961
hibiscus for, 2:1064
high fiber diet for, 2:1067; 3:1613
horse chestnut for, 2:1105
horsetail for, 2:1107
ignatia for, 2:1157
lachesis for, 3:1300
lacto-ovo vegetarianism for, 3:1302
magnolia for, 3:1410
mesoglycan for, 3:1490
mullein for, 3:1536
neem for, 3:1589
nettle for, 3:1592
neural therapy for, 3:1594
noni for, 3:1605
nux vomica for, 3:1616
oak for, 3:1620
passionflower for, 3:1715
plantain for, 3:1764
rhubarb for, 3:1934
sheep sorrel for, 4:2042
shiitake mushroom for, 4:2049
squawvine for, 4:2129
sweet clover for, 4:2175
tea tree oil for, 4:2198
uva ursi for, 4:2305
vegetarianism for, 4:2326

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

witch hazel for, 4:2388, 2389, 2390
yarrow, 4:2401
yellow dock for, 4:2406
Hemp, 2:1033; 3:1430–1431
See also Marijuana
Hemp agrimony. *See* Eupatorium
Hen-in-the-woods. *See* Maitake
Hen plant. *See* Plantain
Hendibeh. *See* Chicory
Hendler, Sheldon Saul, 4:2168, 2355
Hepar sulphuris, 2:**1034–1036**
boils, 1:303
croup, 1:636
earaches, 2:737
in homeopathy, 2:1083*t*
ingrown nails, 2:1191
rashes, 3:1882
tonsillitis, 4:2245
Heparin
deep venous thrombosis, 3:1741
interstitial cystitis, 2:1202
Hepatic jaundice, 2:1234, 1236
Hepatitis, 2:**1036–1041**
from chelidonium, 1:467
Chinese skullcap for, 4:2076
Chinese thoroughwax for, 1:504, 505
cirrhosis and, 1:545–546, 548, 549; 2:1037, 1038, 1040
colchicum for, 1:560
cordyceps for, 1:608
dandelion for, 2:659
ganoderma for, 2:887
gardenia for, 2:894
gentiana for, 2:916
Kampo medicine for, 2:1257
lycopodium for, 3:1381
lysine for, 3:1392
milk thistle for, 3:1503
reishi mushroom for, 3:1903
schisandra for, 4:1990
Tibetan medicine for, 4:2239
urine therapy for, 4:2295
wormwood for, 4:2396
Hepatitis Foundation International, 3:1512; 4:2077
Hepatobiliary and Pancreatic Diseases International, 1:558
HER/S growth protein, breast cancer and, 1:326
Herald patches (pityriasis rosea), 3:1759
HERB CHF (Hawthorn Extract Randomized Blinded Chronic Heart Failure trial), 2:996
Herb of five tastes. *See* Schisandra
Herb of remembrance. *See* Rosemary
The Herb Quarterly, 4:1979
Herb Research Foundation, 1:421
Herb tuppence. *See* Lysimachia
Herba agastachis. See Agastache
Herba Andrographitis paniculatae. See Andrographis
Herba centipedae, for rhinitis, 3:1929
Herba chenopodii ambrosiodis, for worms, 4:2393
Herba cum Radice Asari with Radix Angelicae Sinensis, for fibrocystic breast disease, 2:838
Herba eupatorii. See Eupatorium
Herba houttuyniae. See Houttuynia cordata
Herba lophatheri, for prickly heat, 3:1809
Herba lygodii japonici, for kidney stones, 2:1274, 1278
Herba menthae. See Mint
Herba Portulacae Oleraceae, 1:77
Herba solidaginis. See Goldenrod
Herbal Classic of the Divine Plowman. See Shen Nong Ben Cao Jing
Herbal cold remedies, 2:**1045–1048**
Herbal Drugs and Phytopharmaceuticals, 1:279
Herbal medicine, 1:**315–321;** 2:**1041–1045, 1048–1053**
acne, 1:7–8
aconite, 1:11
ADHD, 1:176
aging, 1:30
AIDS, 1:36–37
alcoholism, 1:44
allergies, 1:54–55
Alzheimer's disease, 1:67
amenorrhea, 1:72
anemia, 1:85
angelica, 1:87
anise in, 1:94
ankylosing spondylitis, 1:97
anorexia nervosa, 1:100
anxiety, 1:116
arnica in, 1:135
asthma, 1:156
atherosclerosis, 1:166
athlete's foot, 1:168
bedsores, 1:211
bedwetting, 1:213
binge eating disorder, 1:241
biological cancer treatment and, 1:396
bipolar disorder, 1:257
blood clots, 1:292
boils, 1:303
breast cancer, 1:324–325
bronchitis, 1:340
burns, 1:362
bursitis, 1:364
canker sores, 1:398–399
cataracts, 1:417
cervical dysplasia, 1:451
chemical poisoning, 1:471
chickenpox, 1:478
chlamydia, 1:514
chronic fatigue syndrome, 1:533
cirrhosis, 1:548
colic, 1:568
colitis, 1:570
colorectal cancer, 1:580
coltsfoot in, 1:585
common cold, 1:590–591
conjunctivitis, 1:594–595
constipation, 1:599
contact dermatitis, 1:602
cough, 1:618–619
Crohn's disease, 1:633
croup, 1:636
cuscuta in, 1:645–646
cuts and scratches, 1:648
dandruff, 2:661
dementia, 2:665–666
dermatitis, 2:674
detoxification and, 2:676*t*, 678–679
diabetes, 2:689
diaper rash, 2:695
diarrhea, 2:698
diverticulitis, 2:710
dizziness, 2:713
dry mouth, 2:721
dysbiosis, 2:723–724
dysmenorrhea, 2:729
ear infections, 2:733
eczema, 2:674, 743
emphysema, 2:754
endometriosis, 2:759–760
epididymitis, 2:774, 775
fatigue, 2:816–817
fever, 2:832
fibromyalgia, 2:840
food poisoning, 2:861
fractures, 2:864
frostbite, 2:873
fungal infections, 2:877
gallstones, 2:880
gangrene, 2:886
gastritis, 2:902
gastroenteritis, 2:907
gastrointestinal gas, 2:899, 899*t*
genital herpes, 2:911
gentiana in, 2:916
gonorrhea, 2:950
gout, 2:957
gum diseases, 2:978
hair loss, 2:984
hangovers, 2:988
hay fever, 2:999
headaches, 2:1002*t*, 1004
hearing loss, 2:1009
heart attacks, 2:1012
heart disease, 2:1017–1018
heartburn, 2:1023
heavy metal poisoning, 2:1027
hepatitis, 2:1039
history, 1:316; 2:1041–1042, 1048–1050
Hodgkin's disease, 2:1074
holistic dentistry and, 2:1077
as holistic medicine, 2:1081
hyperopia, 2:1127

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Herbal medicine *(continued)*
hyperthyroidism, 2:1139
hypoglycemia, 2:1146
hypothyroidism, 2:1150
impetigo, 2:1163
impotence, 2:1164–1165
indigestion, 2:1167*t*, 1169
infections, 2:1175–1176
infertility, 2:1180–1181
inflammatory bowel disease, 2:1184
influenza, 2:1187–1188
ingrown nails, 2:1191
insomnia, 2:1195–1196
insulin resistance, 2:1200
interstitial cystitis, 2:1202
iron in, 2:1216–1217
irritable bowel syndrome, 2:1220
ischemia, 2:1225
itching, 2:1229
jaundice, 2:1236
kidney infections, 2:1274
kidney stones, 2:1278
knee pain, 2:1282–1283
Kneipp wellness and, 2:1285
laryngitis, 3:1308–1309
lead poisoning, 3:1319
learning disorders, 3:1322
low back pain, 3:1365
Lyme disease, 3:1386
lymphomas, 3:1420
magnolia in, 3:1410
malaria, 3:1416
measles, 3:1446
memory loss, 3:1463
Ménière's disease, 3:1466–1467
meningitis, 3:1472
menopause, 3:1474–1475
menstruation disorders, 3:1482
migraine, 3:1500, 1501
mononucleosis, 3:1514–1515
motion sickness, 3:1521
multiple chemical sensitivity, 3:1540
mumps, 3:1546
muscle cramps, 3:1550
myopia, 3:1555
nausea, 3:1583
neuralgia, 3:1596–1597
night blindness, 3:1603
obsessive-compulsive disorder, 3:1629
osteoarthritis, 3:1656
osteoporosis, 3:1665
ovarian cancer, 3:1670, 1671
ovarian cysts, 3:1676
for pain, 3:1684–1685
panic disorders, 3:1698
parasitic infections, 3:1705
pelvic inflammatory disease, 3:1724
peptic ulcers, 4:2285–2286
peripheral neuropathy, 3:1734
phlebitis, 3:1740
pleurisy, 3:1767–1768
pneumonia, 3:1772
polycystic ovarian syndrome, 3:1779
postpartum depression, 3:1781
pregnancy, 3:1798
premenstrual syndrome, 3:1805–1806
prickly heat, 3:1809
prostate enlargement, 3:1831
psoriasis, 3:1837
radiation injuries, 3:1876
rashes, 3:1881–1882
Raynaud's syndrome, 3:1887
retinopathy, 3:1919
rheumatoid arthritis, 3:1926
rhinitis, 3:1928–1929
rhubarb in, 3:1934
rubella, 3:1956
scabies, 4:1982
scarlet fever, 4:1987
schizophrenia, 4:1998
sciatica, 4:2002
seniors, 4:2017
sexual dysfunction, 4:2032–2033
shingles, 4:2052–2053
sinus infections, 4:2069
sleep disorders, 4:2085
smoking cessation, 4:2093
sneezing, 4:2096
snoring, 4:2098
sore throat, 4:2106
staphylococcal infections, 4:2136–2137
sties, 4:2141
stomachaches, 4:2143–2144
strep throat, 4:2148
stress, 4:2152
strokes, 4:2156
substance abuse, 4:2161
sunburn, 4:2168
swimmer's ear, 4:2177
systemic lupus erythematosus, 4:2188
teething, 4:2205
tendinitis, 4:2210
tennis elbow, 4:2213
Tibetan medicine and, 4:2240
tonsillitis, 4:2245
toothaches, 4:2247
toxic shock syndrome, 4:2252
traditional African medicine and, 4:2253–2254
tremors, 4:2263
trichomoniasis, 4:2268
tuberculosis, 4:2276
unani-tibbi and, 4:2289
urinary incontinence, 4:2293
uterine fibroids, 4:2302
UTIs, 1:284–285
vaginitis, 4:2309
varicose veins, 4:2317
vomiting, 4:2358
warts, 4:2363
wheezing, 4:2371–2372
whooping cough, 4:2379
worms, 4:2393
wounds, 4:2399
yeast infections, 4:2404
See also specific herbs
Herbal Medicine Past and Present, 1:279
Herbal teas. *See* Infusions
Herbal vinegars
apple cider, 1:122–124
fungal infections, 2:877
itching, 2:1229
with lavender, 3:1312
The Herball or General Historie of Plantes (Gerard), 2:1049
Herbicides, poisoning and, 1:469
Herceptin (trastuzumab), for breast cancer, 1:326
Heredity. *See* Genetics
Hering, Constantine, 2:1087, 1094; 3:1299
Hering's Laws of Cure, 2:1087, 1094
Hernias, comfrey for, 1:587
Herniated brain stem, 3:1472
Herniated disks, 2:**1053–1058**, *1054*, *1055*
homeopathy for, 2:1090
low back pain and, 3:1363, 1366
neck pain and, 3:1584
osteopathy for, 3:1658
Herodotus, 3:1295, 1430
Heroics (traditional Chinese medicine), 2:1051
Herpangina, 4:2105
Herpes febrilis. *See* Cold sores
Herpes genitalis. *See* Genital herpes
Herpes labialis. *See* Cold sores
Herpes simplex virus
arsenicum album for, 1:144
bitter melon for, 1:264
eucalyptus for, 2:794
gentiana for, 2:916
Hepar sulphuris for, 2:1036
homeopathy for, 2:1094
lysine for, 3:1392
mercurius vivus for, 3:1484
neem for, 3:1588
overview, 1:561–562
peppermint for, 3:1731
quercetin for, 3:1866
rhus toxicodendron for, 3:1936
sheep sorrel for, 4:2042
St. John's wort for, 4:2131
sulfur for, 4:2162, 2163
turmeric for, 1:642
urine therapy for, 4:2295
See also Cold sores
Herpes virus 4. *See* Epstein-Barr virus
Herpes zoster. *See* Shingles
Hersch, Mark, 4:2095
Herschler, Robert, 3:1530
Hesperidin, 1:246; 2:**1058–1060**
Heterocyclics, fordepression, 2:671
Heterotopic ossification, 1:343

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

hGH (human growth hormone), for aging, 1:30
HHS. *See* U.S. Department of Health and Human Services
Hiatal hernias, 2:1022, **1060–1062,** *1061*
Hibiscus, 2:**1062–1064,** 1169
Hiccups, 2:**1064–1066**
skullcap for, 4:2075
spearmint for, 4:2119
tangerine peel for, 4:2195, 2196
Hidden hyperventilation, 1:368
Hidden Language yoga, 2:993
Hierba del venado. *See* Damiana
Higgins, James, 1:215
High blood pressure. *See* Hypertension
High cholesterol. *See* Hypercholesterolemia
High colonic. *See* Colonic irrigation
High cranberry. *See* Cramp bark
High-density lipoprotein cholesterol
niacin, 4:2338
omega-3 fatty acids, 3:1631
overview, 1:518, 518*t*
psyllium, 3:1850
red yeast rice extract, 3:1893
soy protein, 4:2115
High-density negative air ionization, 4:2008
High fat diets. *See* Ketogenic diets
High fiber diets, 2:**1066–1069,** 1066*t;* 3:1613–1614
constipation, 1:598
diverticulitis, 2:711
endometriosis, 2:759
heart attacks, 2:1012, 1013
hemorrhoids, 2:1034
indigestion, 2:1169
irritable bowel syndrome and, 2:1220, 1221
Kneipp wellness and, 2:1285
Ornish diet as, 3:1646
Pritikin diet, 3:1815–1817
High-grade Squamous Intraepithelial Lesions (HSIL), 1:450, 451
High protein diets
Atkins diet, 1:169–173; 3:1816
weight loss, 2:703
High sensitivity C-reactive protein tests, 1:105; 2:**1069–1071;** 3:1778
High-water-content food, 2:692
Highly active anti-retroviral therapy (HAART), 1:39
Highwaythorn. *See* Buckthorn
Hildegard of Bingen, 1:359; 3:1342
Hilton, James, 4:2037
Hindmilk, 1:329
The Hindu (newspaper), 3:1811
Hinduism, 4:2324, 2414
Hip fruit/tree. *See* Rose hips
Hippocrates
apitherapy, 1:119; 4:2330
apple cider vinegar, 1:122
bee pollen, 1:214
biological cancer treatment, 1:394
chasteberry, 1:459
ear surgery, 1:185
energy medicine, 2:761
fasting, 2:676, 812
herbal medicine, 2:1048, 1049
holistic medicine, 2:1080
hyssop, 2:1152
licorice, 3:1341
light therapy, 3:1343
marsh mallow, 3:1434
massage therapy, 3:1439, 1959
mind/body medicine, 3:1505, 1793
prolotherapy, 3:1823
trepanation, 4:2265
white willow, 4:2375
Hippocrates Health Institute, 4:2381
Hirsutism
acne, 1:7
polycystic ovarian syndrome, 3:1777
Hirtentasche. *See* Shepherd's purse
Histadine-rich protein II malaria tests, 3:1416
Histamine
common cold, 1:590
food poisoning, 2:861, 862
hay fever, 2:998
Histamine receptor blockers
heartburn, 2:1024
hiatal hernia, 2:1062
indigestion, 2:1170
peptic ulcers, 4:2286
Historia Plantarum (Theophrastus), 2:1048
HIV (human immunodeficiency virus)
arginine for, 1:131, 132
bitter melon for, 1:264
cirrhosis and, 1:546
curcumin for, 1:642
garlic and, 2:896, 897–898
Hodgkin's disease and, 2:1073
hypothyroidism and, 2:1149
hyssop for, 2:1152
lysine for, 3:1392
maitake for, 3:1413
meditation for, 3:1452
melatonin for, 3:1459
milk thistle for, 3:1502, 1503
notoginseng for, 3:1609
pneumonia and, 3:1770–1771
polarity therapy for, 3:1774
saliva sampling and, 4:1973, 1974
sargassum seaweed for, 4:1976
shiitake mushroom for, 4:2049
St. John's wort for, 4:2131–2132
syphilis and, 4:2182
See also AIDS
Hive vine. *See* Squawvine
Hives, 2:**1071–1073**
defined, 1:54
parsley for, 3:1712
rhus toxicodendron for, 3:1936
sheep sorrel for, 4:2042
tea tree oil for, 4:2198
treatment, 1:55
HKD (hyperkinetic disorder). *See* Attention-deficit hyperactivity disorder
HLA-B27 gene, 1:96
HMB (beta-methylbutyric acid), 1:224–226
Ho shou wu. *See* Fo ti
Hoa-Tho, 3:1431
Hoarseness
grapefruit seed extract for, 2:965
ipecac for, 2:1207
mullein for, 3:1536
Hoary plantain. *See* Plantain
Hodgkin's disease, 2:**1073–1075;** 3:1419, 1515
Hoffman, David L., 1:460
Hoffman-La Roche, 4:2341
Hokkaido University, 4:2049
Holistic Dental Association, 2:1079
Holistic dentistry, 2:**1075–1079,** *1076;* 3:1961
Holistic medicine, 2:**1079–1082**
Ayurvedic medicine as, 1:195
Cayce systems and, 1:423–425
for headaches, 2:1004
naturopathic medicine as, 3:1578
osteopathy as, 3:1658–1659
polarity therapy as, 3:1774, 1775
psychophysiology and, 3:1840–1841
Holl, Rita M., 2:1214
Holligold. *See* Calendula
Hollings Cancer Center, 3:1884
Holly flower essence, 1:198; 2:850*t,* 851
Holmes-Adie syndrome. *See* Adie's pupil
Holotropic breathwork, 1:331, 333
Holy thistle. *See* Blessed thistle
Home blood glucose monitoring kits, 2:687
Home modifications
Alzheimer's disease, 1:68; 2:666
asthma, 1:158
chemical poisoning prevention, 1:473
eczema, 2:742
feng shui and, 2:822–823
lead poisoning prevention, 3:1319
multiple chemical sensitivity, 3:1539–1540
Home ovulation kits, 4:1972, 1973, 1974
Home pregnancy tests, 3:1798

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Home remedies. *See* Folk medicine
Homelessness, frostbite and, 2:871
Homeopathic Academy of Naturopathic Physicians, 2:1088, 1092, 1096
Homeopathic aggravations
belladonna, 1:223
iron, 2:1216
mercurius vivus, 3:1485
overview, 2:1087, 1094–1095
Homeopathy, 2:1083–1084*t,* **1083–1097**
abscesses, 1:2
aconite in, 1:11
acute prescribing, 2:1089–1092
ADHD, 1:177
allergies, 1:55
anemia, 2:1216
anxiety, 1:115
apis in, 1:117–118
arnica in, 1:135
aromatherapy and, 1:141
arsenicum album in, 1:143, 144–145
asthma, 1:157
astigmatism, 1:160
atherosclerosis, 1:166–167
bedwetting, 1:213
belladonna in, 1:222, 223
biotherapeutic drainage, 1:252
bites and stings, 1:261
blue cohosh in, 1:298–299
boils, 1:303
bone spurs, 1:309
botanical medicine and, 1:317
bronchitis, 1:340
bruises, 1:342
bryonia in, 1:345–346
bulimia nervosa, 1:353
burns, 1:362
bursitis, 1:364
calcarea carbonica in, 1:375–377
cancer treatment, 1:389
cantharis in, 1:399–401
carpal tunnel syndrome, 1:409
cell salt therapy and, 1:432, 433
chemical poisoning, 1:471
chickenpox, 1:478
childhood nutrition and, 1:494
chlamydia, 1:514
chronic fatigue syndrome, 1:533
cirrhosis, 1:548
colic, 1:568
common cold, 1:591
conjunctivitis, 1:594
constitutional prescribing, 1:376–377; 2:1092–1097
contact dermatitis, 1:602
cough, 1:619
croup, 1:636
cuts and scratches, 1:647
dementia, 2:666
depression, 2:671
dermatitis, 2:674
dizziness, 2:713
ear infections, 2:733
earaches, 2:737
emphysema, 2:755
endometriosis, 2:760
epididymitis, 2:775
epilepsy, 2:778
eyebright in, 2:807
ferrum phosphoricum in, 2:828–830
fever, 2:832; 4:1987
flower remedies and, 2:851
food poisoning, 2:861
founding, 1:317; 2:1050
fractures, 2:864
frostbite, 2:872
gallstones, 2:880
gastroenteritis, 2:907
gastrointestinal gas, 2:899, 899*t*
gelsemium in, 2:909
genital herpes, 2:911–912
genital warts, 2:914
gout, 2:957
Gulf War syndrome, 2:975
gum diseases, 2:978
halitosis, 2:985
hangovers, 2:988
hay fever, 2:999
headaches, 2:1002*t,* 1004
hearing loss, 2:1009
heartburn, 2:1023
heavy metal poisoning, 2:1027
hemorrhoids, 2:1033
Hepar sulphuris in, 2:1034–1036
herbal cold remedies, 2:1045, 1046
hives, 2:1072
holistic dentistry and, 2:1077
as holistic medicine, 2:1080, 1081
hypercortisolemia, 2:1125
hyperopia, 2:1127
hyperthyroidism, 2:1139
hypothyroidism, 2:1150
indigestion, 2:1169
infertility, 2:1181
influenza, 2:1188
ingrown nails, 2:1191
interstitial cystitis, 2:1203
ipecac in, 2:1206, 1207, 1208
irritable bowel syndrome, 2:1220
ischemia, 2:1225
jaundice, 2:1236
juvenile rheumatoid arthritis, 2:1253
kali bichromium in, 2:1255–1256
Kaposi's sarcoma, 2:1259
knee pain, 2:1283
lachesis in, 3:1298, 1299–1300
laryngitis, 3:1308, 1309
lead poisoning, 3:1319
ledum in, 3:1324–1325
leukemia, 3:1334
lobelia in, 3:1355
low back pain, 3:1365–1366
lung cancer, 3:1371
lycopodium in, 3:1380–1382
magnesium in, 3:1405
measles, 3:1447
Ménière's disease, 3:1466
meningitis, 3:1472
menopause, 3:1475–1476
menstruation disorders, 3:1483
mercurius vivus in, 3:1484–1486
mercury poisoning, 3:1489
mononucleosis, 3:1515
motherwort in, 3:1519
motion sickness, 3:1521
mumps, 3:1546
natrum muriaticum in, 3:1567–1569
nausea, 3:1583
neuralgia, 3:1597
nutmeg in, 3:1610
nux vomica in, 3:1616–1618
obsessive-compulsive disorder, 3:1629
osteoporosis, 3:1665
ovarian cancer, 3:1670
ovarian cysts, 3:1676
pain, 3:1685
panic disorders, 3:1698
pelvic inflammatory disease, 3:1724
pityriasis rosea, 3:1760
placebo effect and, 3:1761, 1762
pleurisy, 3:1768
pregnancy, 3:1799–1800
premenstrual syndrome, 3:1805, 1806
prickly heat, 3:1809
prince's pine in, 3:1815
psoriasis, 3:1837
pulsatilla in, 3:1852–1854
rashes, 3:1882
research on, 1:320
restless leg syndrome, 3:1911
retinopathy, 3:1919
rheumatoid arthritis, 3:1926
rhinitis, 3:1929
rhus toxicodendron in, 3:1935–1937
rubella, 3:1956
ruta in, 3:1960–1961
safety of, 1:320
sciatica, 4:2002
sepia in, 4:2027–2028
sexual dysfunction, 4:2033
shepherd's purse in, 4:2044
shingles, 4:2053, 2054
silica in, 4:2066–2067
sinus infections, 4:2069
sleep disorders, 4:2085
sneezing, 4:2096
snoring, 4:2098
sore throat, 4:2106
sprains and strains, 4:2128
stomachaches, 4:2144
strep throat, 4:2148–2149
sulfur in, 4:2163–2165
swimmer's ear, 4:2177
syphilis, 4:2184
teething, 4:2205
tennis elbow, 4:2213

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

thuja in, 4:2232
tonsillitis, 4:2245
Tourette syndrome, 4:2250
urinary incontinence, 4:2293
urine therapy in, 4:2295
usnea in, 4:2298
uterine fibroids, 4:2302
UTIs, 1:285
vaginitis, 4:2309
vomiting, 4:2358
wheezing, 4:2372
whooping cough, 4:2379–2380
worms, 4:2393
wounds, 4:2399

Homeopathy, acute prescribing, 2:**1089–1092**

Homeopathy, constitutional prescribing, 2:**1092–1097**

Homeostasis, 4:2150

Homework, in behavioral therapy, 1:218

Homocysteine
cerebral vascular insufficiency, 1:448
folic acid, 2:856
garlic, 2:895
ischemia, 2:1223, 1225
methionine, 3:1494
polycystic ovarian syndrome, 3:1778
pyridoxine, 3:1857
Wigmore diet, 4:2383

Honegar, 1:123

Honey
apple cider vinegar and, 1:123
from manuka bush, 3:1427–1430
royal jelly in, 3:1954
stomachaches, 4:2144

Honey plant. *See* Khella

Honeybee venom therapy. *See* Apitherapy

Honeysuckle, 2:*1097*, **1097–1098**
acne, 1:8
andrographis with, 1:77
common cold, 1:590
as flower remedy, 1:198; 2:850*t*, 851
influenza, 2:1187
itching, 2:1229
measles, 3:1446
prickly heat, 3:1809

Hong hua. *See* Safflower flower

Hong Jing Tian. *See* Rhodiola rosea

Honkiol, 3:1410

Hooded willow herb. *See* Skullcap

Hoodia, 2:**1098–1099**

Hoodwart/hoodwort. *See* Skullcap

Hook-up, in Trager psychophysical integration, 4:2259, 2260

Hookworms, 2:1228; 4:2393

Ho'oponopono, 2:1118

HOPE (Heart Outcomes Prevention Evaluation), 4:2350–2351

Hopkins, Sir Frederick, 2:940

Hops, 2:**1100–1101**
as bitter, 1:267
childbirth, 1:276
insomnia, 2:1196, 1197
irritable bowel syndrome, 2:1220
low back pain, 3:1365
premenstrual syndrome, 3:1805
sleep disorders, 4:2085

Horace (poet), 3:1434

Hordeum vulgare. *See* Barley grass

Horehound, 2:**1101–1103**
laryngitis, 3:1308
morning sickness, 3:1517
rhinitis, 3:1928
vomiting, 4:2358

Hormone replacement therapy (HRT)
vs. BHRT, 1:248–251
vs. black cohosh, 1:269
bladder cancer and, 1:280
breast cancer and, 1:394
calcium and, 1:379
chasteberry and, 1:461
health risks, 1:248, 249; 3:1476–1477
heart attacks and, 2:1011
heart disease and, 2:1017
hot flashes, 2:1110–1111
for menopause, 3:1476–1477
vs. NHRT, 3:1571
osteoporosis, 3:1665–1666
See also Estrogen replacement therapy; Natural hormone replacement therapy

Hormone therapy
aging, 1:30
breast cancer, 1:326
cancer, 1:392
endometriosis, 2:760
Hashimoto's thyroiditis, 2:990–991
polycystic ovarian syndrome, 3:1677
premenstrual syndrome, 3:1806
prostate cancer, 3:1827

Hormones
bioidentical *vs.* conventional replacement, 1:248–249
neural therapy, 3:1594
obesity, 3:1626
saliva sampling, 4:1972
vomiting, 4:2357
See also specific hormones

Horn therapy. *See* Cupping

Hornbeam flower essence, 1:198; 2:850*t*, 851

Horney, Karen, 3:1845

Horny goat weed. *See* Epimedium

Horse chestnut, 2:1104–1105, **1104–1105**
cellulite, 1:439
hemorrhoids, 2:1033, 1034
phlebitis, 3:1740
varicose veins, 4:2317

Horseback riding. *See* Therapeutic riding

Horsefoot/horsehoof. *See* Coltsfoot

Horseradish, 2:999; 4:2069

Horsetail, 2:**1105–1107**
bedwetting, 1:213
epididymitis, 2:774
fractures, 2:864
hair loss, 2:984
juvenile rheumatoid arthritis, 2:1253
menopause, 3:1475
menstruation disorders, 3:1482
osteoporosis, 3:1665
urinary incontinence, 4:2293

Hospice care, music therapy and, 3:1552–1553

Hospital-acquired methicillin-resistant *Staphylococcus aureus* (HA-MSRA), 2:1175

Hospital Clinic Provincial, 1:278

Hospitalization
for anorexia nervosa, 1:101
for frostbite, 2:872, 873
nosocomial infections and, 4:2134, 2135, 2405
Pilates and, 3:1750
for schizophrenia, 4:1998
touch therapies and, 1:183–184
yeast infections and, 4:2405

Hot compresses
bedsores, 1:211
boils, 1:303
bruises, 1:342
bursitis, 1:364
colic, 1:568
conjunctivitis, 1:595
earaches, 2:737
fibrocystic breast disease, 2:837, 838
fibromyalgia, 2:839
frostbite, 2:872
itching, 2:1229
low back pain, 3:1365
mumps, 3:1546
ovarian cysts, 3:1676
overview, 2:1122
pelvic inflammatory disease, 3:1724
sties, 4:2141
stomachaches, 4:2144
swimmer's ear, 4:2177
temporomandibular joint syndrome, 4:2207
tennis elbow, 4:2212

Hot flashes, 2:**1108–1113**; 3:1474, 1475
lachesis for, 3:1299
red clover for, 3:1891

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Hot flashes *(continued)*
soy protein for, 4:2115
vitamin E for, 4:2351
See also Menopause
Hot potato compresses, for sties, 4:2141
Hot tub baths, 2:1120–1121
See also Hydrotherapy
Hotlines, poison control centers, 1:471, 472
Hou po. *See* Magnolia
Hou xiang. *See* Agastache
Houndsbane. *See* Horehound
House leek, for warts, 4:2363
House of Angostur, 1:265
Household modifications. *See* Home modifications
Household poisons, 1:468–469, 473; 2:755, 757
Housemaid's knee. *See* Bursitis
Houston, Jean, 3:1296
Houttuynia cordata, 1:77; 3:1929
Howell, Edward, 2:768
Hoxsey, Harry, 2:1113–1114; 4:2184
Hoxsey, John, 2:1113
Hoxsey formula, 2:**1113–1116;** 4:2184, 2185
HPV. *See* Human papillomavirus
HRRC (Health and Rejuvenation Research Center), 1:424
HRT. *See* Hormone replacement therapy
hsCRP test. *See* High sensitivity C-reactive protein tests
HSIL (High-grade Squamous Intraepithelial Lesions), 1:450, 451
Hu zhang, 1:77
Huang Bai, 2:774; 3:1929
Huang lian. *See* Coptis
Huang Lian Jie Du Tang, for Lyme disease, 3:1386
Huang Lian Shang Qing Wan, 1:563
Huang Lian Shui, for rhinitis, 3:1929
Huang Qi. *See* Astralagus
Huang Qin Gao, for shingles, 4:2053
Huang Ti, 2:1041
Huang Ti Nei Ching. See Yellow Emperor's Classic of Internal Medicine
Hubbard tanks, 2:1121
See also Hydrotherapy
Huckleberry. *See* Bilberry
Huges, Bart, 4:2265, 2267
Human bites, 1:259, 260
Human chorionic gonadotropin (hCG), 3:1798
Human Genome Project, 3:1836
Human growth hormone (hGH), for aging, 1:30
Human herpesvirus 8, Kaposi's sarcoma and, 2:1258, 1259
Human immunodeficiency virus. *See* HIV
Human papillomavirus (HPV)
cervical cancer and, 1:386; 4:2299
cervical dysplasia and, 1:449, 451
genital warts from, 2:913–914, 915
red cedar for, 3:1889
warts from, 4:2361, 2364
Human protein C, 1:294, 295
Human tetanus immune globulin (TIG), 4:2216
Humidifiers, for nosebleeds, 3:1607
Humira (adalimumab), 1:97; 2:1253
Humming, for nasal hygiene, 4:2070
Humor therapy, 2:**1116–1117;** 4:2300
Humors, unani-tibbi and, 4:2289
Humphrey, Hubert, III, 3:1879
Humulus lupulus. See Hops
Huna, 2:**1117–1119**
Huna Fellowship, 2:1118
Huneke, Ferdinand, 3:1594
Huneke phenomenon, 3:1594
Hunger, childhood nutrition and, 1:492
See also Malnutrition
Hunner's ulcers, 2:1202
Hunt, Caroline L., 1:487; 4:2200
Hunter/gatherer diet. *See* Paleolithic diet
Huntington's disease, 1:75, 629
Huo Dan Wan, for rhinitis, 3:1929
Huo Xiang. *See* Agastache
Huo Xiang Zheng Qi Wan
agastache in, 1:28
common cold, 1:591
vomiting, 4:2358
Huoxue Zengshi Dan, for hyperopia, 2:1127
Huoxue Zengshi Ye, for hyperopia, 2:1127
Huperzia serrata. See Lycopodium
Huperzine A
Alzheimer's disease, 1:67, 550
memory loss, 3:1463
Hutchinson, Michael, 4:2023
Huxley, Aldous, 1:206, 216
Hyaluronic acid tests, for cirrhosis, 1:547
Hydergine, for Alzheimer's disease, 2:666
Hydrangea, for kidney stones, 2:1278
Hydrastis canadensis. See Goldenseal
Hydrazine sulfate, for cancer, 1:390; 3:1671
Hydrochloric acid
as gastric acid, 1:233–234
for rosacea, 3:1945
Hydrocortisone
cradle cap, 1:620
psoriasis, 3:1838
swimmer's ear, 4:2177
Hydrodistention, for interstitial cystitis, 2:1202
Hydrogen peroxide
gum diseases, 2:978
as oxygen therapy, 3:1679–1680
vaginitis, 4:2309
Hydrogenated oils, health risks, 2:785, 786–787
Hydrophobia. *See* Rabies
Hydrotherapy, 2:**1119–1123**
abscesses, 1:2
anxiety, 1:115
asthma, 1:157
blood clots, 1:292
bronchitis, 1:340
bulimia nervosa, 1:353
bunions, 1:357
bursitis, 1:364
Cayce systems and, 1:424
childbirth, 1:484
chronic fatigue syndrome, 1:533
cirrhosis, 1:547
color therapy and, 1:578
earaches, 2:737
edema, 2:746
endometriosis, 2:760
epididymitis, 2:775
fatigue, 2:816, 817
fever, 2:832
fibromyalgia, 2:839
fractures, 2:864
frostbite, 2:872
gastrointestinal gas, 2:899, 899*t*
glaucoma, 2:934
hangovers, 2:988
headaches, 2:1004
indigestion, 2:1167*t*, 1170
infections, 2:1176
influenza, 2:1188
ingrown nails, 2:1191
insomnia, 2:1196
interstitial cystitis, 2:1202–1203
irritable bowel syndrome, 2:1220
jaundice, 2:1236
jock itch, 2:1240
knee pain, 2:1283
Kneipp wellness and, 2:1284–1285, 1286
laryngitis, 3:1308
with lavender, 3:1311
low back pain, 3:1365
Lyme disease, 3:1386
menstruation disorders, 3:1483
mercury poisoning, 3:1489
migraine, 3:1500
multiple sclerosis, 3:1543
neuralgia, 3:1597
osteoarthritis, 3:1656
pain, 3:1686
panic disorders, 3:1698
peripheral neuropathy, 3:1734
phobias, 3:1743
pityriasis rosea, 3:1760
pleurisy, 3:1768

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

post-traumatic stress disorder, 3:1785
prickly heat, 3:1809
psoriasis, 3:1836
rashes, 3:1882
rheumatoid arthritis, 3:1927
with saltwater, 4:2101
scarlet fever, 4:1987–1988
shingles, 4:2054
sinus infections, 4:2069
stomachaches, 4:2144
stress, 4:2151
substance abuse, 4:2161
tennis elbow, 4:2213
tuberculosis, 4:2276
vomiting, 4:2359
whooping cough, 4:2380
See also Oatmeal baths; Therapeutic baths

Hydrotherapy of the colon. *See* Colonic irrigation

Hydroxychloroquine, for juvenile rheumatoid arthritis, 2:1253

Hydroxycitric acid, for weight loss, 2:890–891, 892

Hydroxyurea, for sickle cell anemia, 4:2065

Hygiene
athlete's foot, 1:169
body odor, 1:301
cold sores, 1:564
common cold, 1:593; 3:1929
conjunctivitis, 1:596
diaper rash, 2:694
ear infections, 2:734–735
eczema, 2:742–743
fungal infections, 2:878
infection, 2:1177
jock itch, 2:1241
lice infestations, 3:1339, 1340
parasitic infections, 3:1705–1706
rashes, 3:1880
scabies, 4:1981, 1983
staphylococcal infections, 4:2137
sties, 4:2141
worms, 4:2394

Hygienist (magazine), 3:1575

Hyoscyamine, for irritable bowel syndrome, 2:1221

Hyperactivity, ADHD and, 1:175

Hyperalgesia, 3:1684

Hyperandrogenism, polycystic ovarian syndrome and, 3:1777, 1778

Hyperbaric oxygen therapy (HBOT)
cerebral palsy, 1:443
defined, 3:1678, 1679
gangrene, 2:886
precautions, 3:1680

Hypercalcemia
cartilage supplements and, 1:411
EDTA chelation therapy for, 1:464, 465
hyperparathyroidism and, 2:1130

Hypercholesterolemia
acidophilus for, 1:5
artichoke for, 1:149
atherosclerosis and, 1:165
bilberry for, 1:239
carnitine for, 1:402
Chinese skullcap for, 4:2076
chlorella for, 1:516
choline for, 1:522
evening primrose oil for, 2:799
flaxseed for, 2:847
gamma-linolenic acid for, 2:882, 884
ganoderma for, 2:889
garlic for, 1:91; 2:895
ginger for, 2:921
guggul for, 2:970, 971
guided imagery for, 2:972
gymnema for, 2:980
heart attacks and, 2:1011, 1014
heart disease and, 2:1016, 1019
high fiber diet for, 2:1067; 3:1613
ischemia and, 2:1223
Kampo medicine for, 2:1257
kelp for, 2:1269
Korean ginseng for, 2:928
lacto-ovo vegetarianism for, 3:1302
lecithin for, 3:1323
lemongrass for, 3:1329
licorice for, 3:1342
magnesium for, 3:1406
myrrh for, 3:1561
neem for, 3:1589
niacin for, 3:1600; 4:2338
notoginseng for, 3:1608, 1609
oak for, 3:1620
omega-3 fatty acids for, 3:1631
overview, 1:518–521
panchakarma for, 3:1689
pine bark extract for, 3:1756
Pritikin diet for, 3:1816
probiotics for, 3:1820
psyllium for, 3:1764, 1850
quercetin for, 3:1866
red yeast rice extract for, 1:91; 3:1893–1894
reishi mushroom for, 3:1903
royal jelly for, 3:1954
safflower for, 4:1966
sesame oil for, 4:2029
shiitake mushroom for, 4:2049
soy protein for, 4:2115, 2116
spirulina for, 4:2123
triphala for, 4:2272
turmeric for, 1:642; 4:2280
veganism for, 4:2319
vegetarianism for, 4:2326
vitamin B12 for, 4:2336
wild oat for, 4:2384
yoga for, 2:993; 4:2409, 2412

Hypercortisolemia, 2:**1124–1126**

Hyperdefecation, 2:695

Hyperemesis gravidarium, 3:1517

Hyperforin, for dysbiosis, 2:724

Hyperglycemia
ganoderma for, 2:889
guided imagery for, 2:972

Hyperhidrosis, 1:301

Hypericum (homeopathic remedy)
bites and stings, 1:261
cuts and scratches, 1:647
frostbite, 2:872
in homeopathy, 2:1084*t*
ingrown nails, 2:1191
pain, 3:1685
wounds, 4:2399

Hypericum perforatum. *See* St. John's wort

Hyperkinetic disorder (HKD). *See* Attention-deficit hyperactivity disorder

Hypermagnesemia, 3:1404, 1407

Hypermobility, temporomandibular joint syndrome and, 4:2206

Hyperopia, 2:1125, **1126–1128**

Hyperosmotic agents, for glaucoma, 2:934

Hyperparathyroidism, 2:**1128–1131,** *1129*

Hyperpigmentation
chickenpox, 1:477
pityriasis rosea, 3:1760

Hypersecretory syndromes, ulcers and, 4:2283

Hypersensitivity. *See* Allergies

Hypersomnia, 4:2079, 2080, 2083

Hypertension, 2:**1131–1135**
anemarrhena for, 1:81
apple cider vinegar for, 1:123–124
ashwaganda for, 1:152
atherosclerosis and, 1:165
biofeedback for, 3:1507
black cohosh for, 1:270
cat's claw for, 1:422
cerebral vascular insufficiency and, 1:448
Chinese skullcap for, 4:2076
chlorella, 1:516
chromium for, 1:529
chrysanthemum for, 1:535
cinnamon for, 1:544
codonopsis root for, 1:554
coenzyme Q10 for, 1:555
coleus for, 1:566
cornsilk for, 1:611
corydalis for, 1:615
cyperus for, 1:651
dandelion for, 2:659
dong quai for, 2:718
epimedium for, 2:781
fish oil for, 2:841
gamma-linolenic acid for, 2:882, 883, 884
ganoderma for, 2:888
garlic for, 2:895
gastrodia for, 2:905
gentiana for, 2:916

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Hypertension *(continued)*
Gerson therapy for, 2:919
glutathione for, 2:940
goldenseal for, 2:948
grape seed extract for, 2:961
guided imagery for, 2:972
hawthorn for, 2:995
heart attacks and, 2:1011, 1014
heart disease and, 2:1016–1017, 1020
hibiscus for, 2:1063–1064
ischemia and, 2:1223, 1226
juniper for, 2:1249
kelp and, 2:1269, 1270
kudzu for, 2:1291, 1292
lacto-ovo vegetarianism for, 3:1302
lycium fruit for, 3:1376
macrobiotic diet for, 3:1397
magnesium for, 3:1405
maitake for, 3:1413
McDougall diet for, 3:1443
meditation for, 3:1449, 1451
mistletoe for, 3:1510, 1511
neem for, 3:1589
noni for, 3:1605
omega-3 fatty acids for, 3:1631
panchakarma for, 3:1689
potassium for, 3:1787
Pritikin diet for, 3:1816
probiotics for, 3:1820
qigong for, 3:1859
quercetin for, 3:1866
reishi mushroom for, 3:1903
relaxation therapy for, 3:1906
retinal detachment and, 3:1915, 1916
retinopathy and, 3:1917, 1918
rhubarb for, 3:1934
Rosen method for, 3:1953
Siberian ginseng for, 2:930
sodium and, 4:2101
stevia for, 4:2138
stroke risk and, 4:2155, 2156
t'ai chi for, 4:2193
therapeutic touch for, 4:2224
traditional African medicine for, 4:2253
valerian for, 4:2312
veganism for, 4:2319
vegetarianism for, 4:2326
vitamin C for, 4:2343
white peony root for, 4:2374
yoga for, 2:993; 4:2409, 2412
yucca for, 4:2418
Zone diet for, 4:2423
See also Antihypertensive agents

Hypertensive retinopathy, 3:1917, 1918

Hyperthermia, 2:**1136–1137**

Hyperthyroidism, 2:**1137–1140,** 1138*t*
bladderwrack and, 1:287
bugle weed for, 1:351
hair loss and, 2:983
iodine for, 2:1204
lemon balm for, 3:1326
lycopus for, 3:1383
motherwort for, 3:1518, 1519
sargassum seaweed and, 4:1976

Hyperuricemia, 2:955–956

Hyperventilation, Buteyko method and, 1:367–369

Hypnotherapy, 2:**1140–1144**
anorexia nervosa, 1:101
bulimia nervosa, 1:353
eczema, 2:743
gangrene, 2:886
genital herpes, 2:911
genital warts, 2:914
Gulf War syndrome, 2:975
Hodgkin's disease, 2:1074
holistic dentistry and, 2:1077
hot flashes, 2:1112
inflammatory bowel disease, 2:1185
irritable bowel syndrome, 2:1220, 1221
itching, 2:1229
lymphomas, 3:1420
migraine, 3:1500
as mind/body medicine, 3:1507–1508
neuralgia, 3:1597
ovarian cancer, 3:1670
pain, 3:1686
panic disorders, 3:1698
past life therapy and, 3:1717, 1718
premenstrual syndrome, 3:1805
psychosomatic medicine and, 3:1843
psychotherapy and, 3:1847
rashes, 3:1882
Raynaud's syndrome, 3:1887
rheumatoid arthritis, 3:1926
rosacea, 3:1945
Rubenfeld synergy method and, 3:1958
sensory integration disorder, 4:2026
shingles, 4:2053
smoking, 4:2092
substance abuse, 4:2161
systemic lupus erythematosus, 4:2188
temporomandibular joint syndrome, 4:2207
Tourette syndrome, 4:2250

Hypnotic state, 2:1141–1142

Hypnotics, for sleep disorders, 2:1196; 4:2086

Hypocalcemia, magnesium and, 3:1405

Hypochlorhydria, 1:234

Hypocretin deficiency, narcolepsy and, 3:1563

Hypoglycemia, 2:**1144–1147**
ashwaganda for, 1:152
brewer's yeast for, 1:335
diabetes and, 2:690
licorice for, 3:1342
memory loss and, 3:1462
noni for, 3:1605

Hypoglycemic agents
gymnema as, 2:980
hypercortisolemia, 2:1125
insulin resistance, 2:1200
khella as, 2:1271
prickly pear cactus as, 3:1811–1812, 1813

Hypokalemia, 1:234; 3:1787, 1788

Hypomagnesemia, 2:688; 3:1404, 1405

Hypomanic episodes, 1:257

Hypopnea, 4:2086

Hypotension
chronic fatigue syndrome and, 1:532
ganoderma for, 2:889
hawthorn for, 2:996
Siberian ginseng for, 2:930
tangerine peel for, 4:2195

Hypothalamus disorders, 1:71, 114

Hypothyroidism, 2:**1147–1151,** 1148*t*
cell therapy for, 1:434
chills from, 1:495, 496
hair and, 2:983
Hashimoto's thyroiditis and, 2:989
iodine for, 2:1204
kelp for, 2:1269

Hypotonic motor impairment, 1:442

Hyssop, 2:**1151–1153**
bronchitis, 1:340
cold sores, 1:563
epilepsy and, 2:777
fever, 2:832; 4:1987

Hysterectomy
endometriosis, 2:760
ovarian cancer, 3:1671
urinary incontinence and, 4:2291
uterine fibroids, 4:2303

Hysterosalpingograms, 2:1179

I

I3C (indole-3-carbinol), for cervical dysplasia, 1:451

IACP (International Academy of Compounding Pharmacists), 2:1110

IAHE (International Alliance of Healthcare Educators), 1:162

IAIM (International Association of Infant Massage), 2:1172, 1173

IAPNH (International Association of Professional Natural Hygienists), 2:814

IATPA (Immuno-Augmentative Therapy Patient Association), 2:1159

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Ibandronate, for osteoporosis, 3:1478, 1666
IBD. *See* Inflammatory bowel disease
Ibn Al Nafees (physician), 4:2288
Ibn Khatima (physician), 4:2288
IBS. *See* Irritable bowel syndrome
Ibuprofen
chills, 1:496
vs. glucosamine, 2:936
headaches, 2:1005
measles, 3:1447
menstruation disorders, 3:1483
migraine, 3:1500
mononucleosis, 3:1515
osteoarthritis, 3:1657
ICAK (International College of Applied Kinesiology), 1:128
Ice packs. *See* Cold compresses
Iceland moss, 2:**1155–1156,** *1156,* 1220; 4:2143
Icterus. *See* Jaundice
ICUs, touch therapies and, 1:183–184
Id (personality), 3:1847
IDEA (Individuals with Disabilities Education Act), 1:445
Ideokinesis, 3:1525
Idiopathic environmental intolerance. *See* Multiple chemical sensitivity
Idiopathic pulmonary fibrosis, glutathione for, 2:940
IEPs (Individualized Educational Plans), 1:445; 3:1321
IFA (immunofluorescence assay) tests, for AIDS, 1:35
IgE (immunoglobulin E), allergies and, 1:56; 2:764
IgG (immunoglobulin G), allergies and, 2:764
Ignarro, Louis J., 1:131
Ignatia, 2:**1157–1158**
anxiety, 1:115
depression, 2:671
in homeopathy, 2:1084*t*
nausea, 3:1583
sleep disorders, 4:2085
IIRA (International Iridology Research Association), 2:1212, 1215
Ileostomy, 1:634; 2:1185
Illite clays, 2:865–866, 868
Imagery. *See* Guided imagery
Imatinib, for Kaposi's sarcoma, 2:1259
Imbiza, health risks of, 4:2254
Imipramine, for bedwetting, 1:214
Imitrex (sumatriptan), for headaches, 2:1005; 3:1500
Immediate hypersensitivity reactions, 1:53
Immediate memory, 3:1461
Immigrants, tuberculosis and, 4:2273, 2274
Immittance testing, 1:180
Immobility, edema from, 2:745
Immobilization, of fractures, 2:864
Immune system
acidophilus and, 1:5; 3:1305
aloe for, 1:60, 61
American ginseng for, 2:924
arginine for, 1:131
arnica for, 1:135
astralagus for, 1:164; 2:1042
bee pollen for, 1:214
beta carotene for, 1:228
biological cancer treatment and, 1:395
black cumin seed extract for, 1:272
black currant seed oil for, 1:274
cat's claw for, 1:422
chronic fatigue syndrome and, 1:531
codonopsis root for, 1:553, 554
colitis and, 1:569, 571
copper for, 1:603
cordyceps for, 1:608
echinacea for, 2:738, 739, 740
endometriosis and, 2:758–759
eucommia bark for, 2:795
fructooligosaccharides for, 2:874
ganoderma for, 2:887, 888
garlic for, 2:896
glutathione for, 2:940
guided imagery for, 2:972
gum diseases and, 2:976–977
hay fever and, 2:998
Hodgkin's disease and, 2:1074
kelp for, 2:1269
kombucha for, 2:1290
Korean ginseng for, 2:928
lomatium for, 3:1357
manuka honey for, 3:1428, 1429
massage therapy for, 3:1440, 1442
mind/body medicine and, 3:1506
music therapy for, 3:1551
neem for, 3:1588
noni for, 3:1605
notoginseng for, 3:1609
osha for, 3:1652
pau d'arco for, 3:1720
psychoneuroimmunology and, 3:1839–1840
reiki for, 3:1900
response to infection and, 2:830, 831, 1174
royal jelly for, 3:1954
shiatsu for, 4:2046
shiitake mushroom for, 4:2049
Siberian ginseng for, 2:930, 931
spirulina for, 4:2123
t'ai chi for, 4:2194
tea tree oil for, 4:2198
theanine for, 4:2221
therapeutic touch for, 4:2223
tonsillitis and, 4:2245
triphala for, 4:2272
turmeric for, 4:2280
vitamin C for, 4:2342–2343
vitamin E for, 4:2350
Wigmore diet for, 4:2382
zinc for, 4:2420
Immune system disorders
apitherapy for, 1:119, 120
applied kinesiology and, 1:126
guided imagery for, 3:1508
homeopathy for, 2:1094
MSM for, 3:1530
panchakarma for, 3:1689
peppermint for, 3:1729
phytolacca for, 3:1748
Russian massage for, 3:1959
Immunity, defined, 2:1174
Immuno-augmentation therapy, 2:**1158–1162**
Immuno-Augmentative Therapy Patient Association (IATPA), 2:1159
Immunodeficiency
AIDS, 1:33
chickenpox, 1:477, 478
chills, 1:495–496
fungal infections, 2:876
MMR vaccine, 3:1547
scabies, 4:1982
shingles, 4:2051–2052, 2054
sickle cell anemia, 4:2063
sinus infections, 4:2068
skin cancer, 4:2073
yeast infections, 4:2403, 2404
Immunofluorescence assay (IFA) tests, for AIDS, 1:35
Immunoglobulin A nephropathy, omega-3 fatty acids for, 3:1632
Immunoglobulin E (IgE), allergies and, 1:56; 2:764
Immunoglobulin G (IgG), allergies and, 2:764
Immunoglobulins, in colostrum, 1:583
Immunological theory of aging, 1:29
Immunology Researching Centre (Bahamas), 2:1159
Immunology Researching Foundation (New York), 2:1159
Immunomodulatory medications, for allergies, 1:56
Immunorejection, in cell therapy, 1:435
Immunotherapy
allergies, 1:56
alopecia areata, 2:984
asthma, 1:158
bee stings, 4:2331
bladder cancer, 1:281
breast cancer, 1:326
cancer, 1:392
hay fever, 2:1000
leukemia, 3:1335
sneezing, 4:2096
venom, 4:2330–2332
Impatiens
as flower remedy, 1:198; 2:850*t*, 851

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Impatiens *(continued)*
for fungal infections, 2:877
for poison ivy, 1:602
for rashes, 3:1881
in Rescue Remedy, 3:1908, 1909
in Rescue Sleep, 4:2085
for skin reactions, 1:55
Imperata cylindrical var. *major*. *See* Bai Mao Gen
Impetigo, 2:*1162*, **1162–1163**
vs. cold sores, 1:562
diaper rash from, 2:694, 695
goldenseal for, 2:948
Implantation endometriosis theory, 2:758
Imported toys, lead poisoning and, 3:1317
Impotence, 2:**1164–1167**
cnidium seeds for, 1:551
cordyceps for, 1:608
cornus for, 1:613
cuscuta for, 1:645
cyperus for, 1:651
epimedium for, 2:781
eucommia bark for, 2:795
ginkgo for, 2:922
Korean ginseng for, 2:928
nutmeg for, 3:1610
overview, 4:2031, 2033
plantain for, 3:1764
psoralea seeds for, 3:1834
rhodiola rosea for, 3:1931
scallion for, 4:1984
suma for, 4:2165
tangerine peel for, 4:2196
yohimbe for, 2:1164–1165; 4:2033, 2415, 2416
Impulsivity
ADHD, 1:174, 175
bipolar disorder, 1:257
Imuran (azathioprine), for juvenile rheumatoid arthritis. *See* Azathioprine
In situ breast cancer, 1:322
In vitro fertilization (IVF), 1:441; 2:1181–1182
Inattention, ADHD and, 1:174, 175
Incisional biopsy, for breast cancer, 1:324
Incomplete fractures, defined, 2:863
See also Fractures
Incontinence. *See* Urinary incontinence
Incorporation radiation injuries, 3:1875
Incus bone, 2:731
India, preservation of traditional knowledge, 1:195
See also Ayurvedic medicine
India rhubarb. *See* Rhubarb root
Indian bark. *See* Magnolia
Indian biscuit root. *See* Lomatium
Indian bread, 1:174
Indian chickweed. *See* Chickweed
Indian corn. *See* Cornsilk
Indian desert parsnip. *See* Lomatium
Indian echinacea. *See* Andrographis
Indian elm. *See* Slippery elm
Indian frankincense. *See* Boswellia
Indian ginseng. *See* Ashwaganda
Indian hemp. *See* Marijuana
Indian medicine. *See* Ayurvedic medicine
Indian mulberry. *See* Noni
Indian olibanum. *See* Boswellia
Indian paint. *See* Bloodroot; Goldenseal
Indian parsley. *See* Osha
Indian parsnip. *See* Lomatium
Indian Pharmacopoeia, eucalyptus in, 2:793
Indian plant. *See* Bloodroot; Goldenseal
Indian plantago. *See* Psyllium
Indian tobacco. *See* Lobelia
Indiana University, 4:1968
Indigenous medicine. *See specific types*
Indigenous Traditional Healing Council, 3:1795
Indigestion, 2:**1167–1171,** 1167*t*
acidophilus for, 3:1305
arsenicum album for, 1:144
artichoke for, 1:149
chamomile for, 1:455
chelidonium for, 1:466
chiropractic for, 1:510, 511
cinnamon for, 1:543
evodia fruit for, 2:802
gardenia for, 2:893
ginger for, 2:921
grains-of-paradise for, 2:960
ignatia for, 2:1157, 1158
juniper for, 2:1249
lavender for, 3:1311
lipase for, 3:1350
magnolia for, 3:1410
manuka honey for, 3:1428
marsh mallow for, 3:1434
mercurius vivus for, 3:1484
natrum muriaticum for, 3:1568
neem for, 3:1589
nutmeg for, 3:1610
osha for, 3:1653
peppermint for, 2:704; 3:1728, 1730
rosemary for, 3:1951
shiatsu for, 4:2046
sulfur for, 4:2162
tangerine peel for, 4:2195
usnea for, 4:2297–2298
wormwood for, 4:2395
Indigo (color), 1:577, 578
Individualized Educational Plans (IEPs), 1:445; 3:1321
Individuals with Disabilities Education Act (IDEA), 1:445
Indole-3-carbinol (I3C), for cervical dysplasia, 1:451
Indolent Kaposi's sarcoma, 2:1258
Indomethacin, for headaches, 2:1005
Indoor air quality
asthma, 1:158
chemical poisoning, 1:469, 473
multiple chemical sensitivity, 3:1538
sick building syndrome, 4:2058
Induction endometriosis theory, 2:758
Induction phase, Atkins diet, 1:171
Induction therapy, for leukemia, 3:1334
Indurative mastopathy. *See* Fibrocystic breast disease
Industrial safety. *See* Occupational factors
Infant formula, 2:874; 4:2115–2116
Infant massage, 2:*1171*, **1171–1173**
Infants
anise and, 1:94
botulism in, 2:859–860
cerebral palsy and, 1:440–441
chickenpox in, 1:477
cold remedies and, 2:1045
colic in, 1:567–569
cradle cap in, 1:619–621, *620*
diaper rash in, 2:693–695, *694*
ear infections in, 2:731
eczema in, 2:741
food tastes, 1:492
fructooligosaccharides for, 2:874
laryngitis in, 3:1308, 1309
omega-3 fatty acids for, 3:1631
rashes in, 3:1880–1881
rhubarb for, 3:1934
sickle cell anemia in, 4:2063, 2065
syphilis in, 4:2182, 2185
teething, 1:455
therapeutic touch for, 4:2223
vitamin D and, 4:2348
See also Breast-feeding
Infections, 2:**1173–1178**
American ginseng for, 2:924
apitherapy for, 1:119
arsenicum album for, 1:144
cancer and, 1:386
cerebral palsy from, 1:441
chills from, 1:496
Chinese skullcap for, 4:2076
cinnamon for, 1:544
colostrum for, 1:583
diarrhea from, 2:696
echinacea for, 2:738
edema from, 2:745
fever from, 2:830, 831
gardenia for, 2:893
garlic for, 2:895, 896
glutamine for, 2:938
goldenrod for, 2:947

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

homeopathy for, 2:1086
honeysuckle for, 2:1097–1098
juniper for, 2:1249
lomatium for, 3:1357
mistletoe for, 3:1510
oregano for, 3:1639
oxygen therapy for, 3:1679
panchakarma for, 3:1689
pau d'arco for, 3:1719
peppermint for, 3:1728
probiotics for, 3:1820
rashes from, 3:1880
sheep sorrel for, 4:2042
slippery elm for, 4:2088
stevia for, 4:2138
therapeutic touch for, 4:2223
usnea for, 4:2298
vitamin B12 for, 4:2336
vomiting and, 4:2357
wormwood for, 4:2396
from wounds, 4:2400
See also specific types

Infectious hepatitis. *See* Hepatitis

Infectious mononucleosis. *See* Mononucleosis

Infertility, 2:**1178–1182**
American ginseng for, 2:924
chiropractic for, 1:510, 511
chlamydia and, 1:512, 514
cinnamon for, 1:544
cnidium seeds for, 1:551
cordyceps for, 1:608
cuscuta for, 1:645
endometriosis and, 2:759
gonorrhea and, 2:951
pelvic inflammatory disease and, 3:1721, 1725
sepia for, 4:2028
traditional African medicine for, 4:2253
uterine fibroids and, 4:2301–2302
vitamin B12 for, 4:2336, 2338
vitamin E for, 4:2351
zinc for, 4:2422

Inflammation
apis for, 1:118, 120
apitherapy for, 4:2331
arka for, 1:132
ashwaganda for, 1:152
bioflavonoids for, 1:245, 246
black cumin seed extract, 1:273
black currant seed oil for, 1:274, 275
boneset for, 2:797
borage for, 1:310
boswellia for, 1:315
bromelain for, 1:337, 338
cat's claw for, 1:422
chamomile for, 1:455
chickweed for, 1:480
of chicory, 1:481
Chinese skullcap for, 4:2076
Chinese thoroughwax for, 1:504
chymotrypsin for, 1:538–539
coix for, 1:557
colchicum for, 1:560
comfrey for, 1:587
compresses for, 2:1122
cramp bark for, 1:622
in Crohn's disease, 1:631, 633
devil's claw for, 2:680, 681, 682
diets for, 1:104–108
edema from, 2:745
elder flower for, 2:747
eucommia bark for, 2:795
evening primrose oil for, 2:800
evodia fruit for, 2:802
eyebright for, 2:807
fenugreek for, 2:826
feverfew for, 2:833
flaxseed for, 2:846
gamma-linolenic acid for, 2:882
gardenia for, 2:894
gentiana for, 2:916
ginger for, 2:921
goldenrod for, 2:946
goldenseal for, 2:948
grape seed extract for, 2:961
grape skin for, 2:964
grapefruit seed extract for, 2:966
green tea for, 2:968
guggul for, 2:970
honey for, 3:1427
honeysuckle for, 2:1097–1098
horehound for, 2:1102
horse chestnut for, 2:1105
horsetail for, 2:1106
hyssop for, 2:1152
Iceland moss for, 2:1155
Jamaican dogwood for, 2:1231
juniper for, 2:1249, 1250
kava kava for, 2:1261
kelp for, 2:1269
licorice for, 3:1342
lomatium for, 3:1357
lomilomi for, 3:1358
lysimachia for, 3:1390
magnetic therapy for, 3:1408
manuka honey for, 3:1429
marijuana for, 3:1432
marsh mallow for, 3:1435
massage therapy for, 3:1439, 1441
mesoglycan for, 3:1490
Mexican yam for, 3:1495
moxibustion for, 3:1528
MSM for, 3:1530
myrrh for, 3:1561
neem for, 3:1588
nettle for, 3:1591
noni for, 3:1605, 1606
notoginseng for, 3:1609
nutmeg for, 3:1610
oak for, 3:1620
ophiopogon for, 3:1637
overview, 1:105–106
panchakarma for, 3:1689
pau d'arco for, 3:1720
phytolacca for, 3:1748
pine bark extract for, 3:1756
prickly pear cactus for, 3:1812
prolotherapy and, 3:1823
quercetin for, 3:1865, 1866
rhubarb for, 3:1934
rhus toxicodendron for, 3:1936, 1937
slippery elm for, 4:2088
spirulina for, 4:2123
squawvine for, 4:2129
St. John's wort for, 4:2131
sweet clover for, 4:2175
tangerine peel for, 4:2195, 2196
tea tree oil for, 4:2198
tendinitis and, 4:2209, 2210
thuja for, 4:2231
triphala for, 4:2272
turmeric for, 4:2280
uva ursi for, 4:2305
wasabi for, 4:2366
white willow for, 4:2376
witch hazel for, 4:2388, 2389, 2390
yarrow for, 4:2402
yucca for, 4:2418
See also Anti-inflammatory agents

Inflammatory bowel disease (IBD), 2:**1183–1186**
appendectomy and, 2:696
glutamine for, 2:938
high fiber diet and, 2:1068
massage therapy for, 3:1440, 1442
mumps and, 3:1545
omega-3 fatty acids for, 3:1631–1632
Saccharomyces boulardii for, 4:1963
See also Crohn's disease; Ulcerative colitis

Inflammatory headaches, 2:1001

Infliximab, 1:97; 2:1253

Influenza, 2:**1186–1190**
arsenicum album for, 1:144
astralagus for, 1:164
boneset for, 1:306, 307; 2:797
catnip for, 1:419
chamomile for, 1:455
chrysanthemum for, 1:535
cicada for, 1:541
cranberry for, 1:625
damiana for, 2:653
elder flower for, 2:747–748
ephedra for, 2:771
eucalyptus for, 2:794
eyebright for, 2:807
field mint for, 4:2117
ganoderma for, 2:887
gardenia for, 2:894
garlic for, 2:896
gelsemium for, 2:909
grapefruit seed extract for, 2:966
homeopathy for, 2:1086, 1090
lemongrass for, 3:1329
lobelia for, 3:1354
lomatium for, 3:1356, 1357
mercurius vivus for, 3:1484
neem for, 3:1588

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Influenza *(continued)*
nux vomica for, 3:1616, 1617
osha for, 3:1653
pau d'arco for, 3:1720
pennyroyal for, 3:1726
peppermint for, 3:1731
phytolacca for, 3:1748
resveratrol for, 3:1913
rhus toxicodendron for, 3:1936, 1937
shiitake mushroom for, 4:2049
Siberian ginseng for, 2:931
silica for, 4:2067
St. John's wort for, 4:2131
stevia for, 4:2138
thuja for, 4:2231
urine therapy for, 4:2295
usnea for, 4:2298
vitamin C for, 4:2341*t*
white willow for, 4:2376
yarrow for, 4:2402
Influenza vaccine
ear infections and, 2:735
pinellia with, 3:1758
pneumonia and, 3:1773
strokes and, 4:2157
Infrared imaging, 4:*2225*, 2225–2227
Infusions
arnica, 1:136
for bedwetting, 1:213
blessed thistle, 1:289
borage, 1:310–311
calendula, 1:383
catnip, 1:419
chickweed, 1:480
for chills, 1:496
dandelion, 2:659
defined, 1:318
echinacea, 2:740
essiac tea, 2:791
eyebright, 2:807
fennel, 2:825
feverfew, 2:834–835
goldenseal, 2:949
green tea, 2:968
horehound, 2:1103
hyssop, 2:1153
for laryngitis, 3:1308–1309
lavender, 3:1311–1312
milk thistle, 3:1504
for morning sickness, 3:1517
mugwort, 3:1534
mullein, 3:1537
nettle, 3:1592
for pain, 3:1685
parsley, 3:1713
pennyroyal, 3:1727
peppermint, 3:1731
plantain, 3:1765
for psoriasis, 3:1837
red clover, 3:1892
rosemary, 3:1951
slippery elm, 4:2089
spearmint, 4:2119
St. John's wort, 4:2132
thyme, 4:2237
wormwood, 4:2396
yarrow, 4:2402
Ingham, Eunice D., 3:1896, 1897
Ingram, Cass, 3:1639
Ingrown nails, 2:*1190*, **1190–1192**
INH (isonicotinyl hydrazine), for tuberculosis, 4:2277
Inhalant substance abuse, 4:2158
Inhalation (aromatherapy), 1:139–140; 2:794
Inhaled allergens, 1:153*t*, 154
Inhaled poisons, 1:472; 3:1487
Inheritance. *See* Genetics
Injection therapy, for varicose veins, 3:1823; 4:2317
Injuries
apitherapy for, 4:2331
geriatric massage for, 2:917
glutamine and, 2:938
notoginseng for, 3:1609
ortho-bionomy for, 3:1648, 1649
pulsatilla for, 3:1852
Raynaud's syndrome and, 3:1886
reiki for, 3:1900
rhubarb for, 3:1934
Rosen method for, 3:1952
safflower in, 4:1967
scallion for, 4:1984
St. John's wort for, 4:2131
Swedish massage for, 4:2172, 2174
tangerine peel for, 4:2196
temporomandibular joint syndrome and, 4:2206
therapeutic touch for, 4:2223
Trager psychophysical integration for, 4:2259
tui na massage for, 4:2257
wintergreen for, 4:2387
witch hazel for, 4:2389
See also Sports medicine; Sprains; Wounds
Inkberry. *See* Phytolacca
Inner ear. *See* Vestibular system
Inner eye. *See* Mind's eye
INNO-LIA tests, for syphilis, 4:2183
Innocent VIII (pope), 3:1431
Inorganic mercury, 3:1487, 1488
Inositol, 2:**1192–1193**
ADHD, 1:177
cholesterol control, 4:2340
endometriosis, 2:759
intermittent claudication, 3:1600
peripheral neuropathy, 3:1734
InPouch tests, for trichomoniasis, 4:2309
Insect bites and stings. *See* Bites and stings
Insect repellents
chrysanthemum, 1:536, 537
feverfew, 2:833
herbal, 2:1230
lavender, 3:1311
lemon balm, 3:1327
lemongrass, 3:1329
lysimachia, 3:1390
for malaria prevention, 3:1417
myrrh, 3:1560, 1561
neem as, 3:1589
parsley, 3:1712
pennyroyal, 3:1726, 1727
ruta, 3:1961
thuja, 4:2232
turmeric, 1:642
wormwood, 4:2395, 2396–2397
Insecticides
chrysanthemum as, 1:536, 537
for lice infestations, 3:1340
malaria prevention, 3:1417
neem as, 3:1588, 1589
toxicity, 1:469
Insects, parasitic infections from, 3:1703, 1705
Insoluble fiber
for constipation, 1:598, 600
defined, 3:1612
high fiber diet and, 2:1066, 1068
Insomnia, 2:**1193–1198**
arsenicum album for, 1:144
biota for, 1:251
Chinese yams for, 1:507
5-HTP for, 2:844
fo ti for, 2:854
ganoderma for, 2:888
gardenia for, 2:893
gastrodia for, 2:905
gelsemium for, 2:909
hawthorn for, 2:996
homeopathy for, 2:1094
hops for, 2:1100
ignatia for, 2:1157
Jamaican dogwood for, 2:1231
kava kava for, 2:1260, 1261
light therapy for, 2:1196, 1197; 3:1344
magnesium for, 3:1406
marijuana for, 3:1432
massage therapy for, 3:1440, 1441
meditation for, 3:1449
melatonin for, 2:1196, 1197; 3:1459
motherwort for, 3:1518
nux vomica for, 3:1617
ophiopogon for, 3:1637
panchakarma for, 3:1689
passionflower for, 3:1714, 1716
peppermint for, 3:1731
pulsatilla for, 3:1852, 1854
pyridoxine for, 3:1857
Rosen method for, 3:1953
Russian massage for, 3:1959
schisandra for, 4:1989
sesame oil for, 4:2030
skullcap for, 4:2075, 2076
squawvine for, 4:2129
sulfur for, 4:2162
therapeutic touch for, 4:2224

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

thuja for, 4:2231
thunder god vine for, 4:2235
turmeric for, 4:2280
valerian for, 4:2312
wild oat for, 4:2385
Institute for ElectroAcupuncture & ElectroDiagnostics, 2:750
Institute for Music, Health, and Education, 4:2110
Institute of Food Chemistry, 3:1428
Institute of Medicine (IOM)
antioxidants, 3:1374
beta carotene, 1:228
fiber recommendations, 2:1067
melatonin, 3:1459
pantothenic acid, 3:1700
riboflavin recommendations, 3:1937–1938, 1938*t*
vitamin B12 recommendations, 4:2321
vitamin C recommendations, 4:2344
See also Food and Nutrition Board
Institute of Orthomolecular Medicine, 3:1650
Institute of Thai Massage, 4:2219
Insufficient interest in current circumstances (Bach flower essences), 1:198; 2:852
Insulin
blood glucose and, 2:685
chromium and, 1:528–529
cinnamon and, 1:543
copper and, 1:603
for diabetes, 2:690
glucosamine and, 2:937
hypoglycemia and, 2:1144, 1146
Korean ginseng and, 2:928
ovarian cysts and, 3:1675, 1677
Pritikin diet and, 3:1816
South Beach diet and, 4:2113
Zone diet and, 4:2423
Insulin analogs, 2:1146
Insulin-dependent diabetes. *See* Diabetes mellitus
Insulin-like growth factors, in colostrum, 1:583, 584
Insulin resistance, 2:**1198–1200**
chromium for, 1:528–529, 530
obesity and, 3:1626
oligomenorrhea and, 3:1481
polycystic ovarian syndrome and, 3:1777, 1778, 1779
Insulin resistance syndrome, 2:1198–1199
Insulin shock, 2:1144
Integral yoga, 2:993
Integrated Chinese Herbal Nutraceuticals, 1:645
Integrative medicine
cancer treatment, 1:388, 389–390
chiropractic, 1:509
ovarian cancer treatment, 3:1671
Intensive care units (ICUs), touch therapies and, 1:183–184
InterCure, 2:1135
Interferon
Chinese thoroughwax and, 1:505
chlorella and, 1:516
for genital warts, 2:914
zinc and, 4:2421
Interleukin-6, juvenile rheumatoid arthritis and, 2:1253
Intermittent claudication
carnitine for, 1:402
EDTA chelation therapy for, 1:464
ginkgo for, 2:922
inositol for, 3:1600
niacin for, 4:2338
Internal derangement, temporomandibular joint syndrome and, 4:2206, 2207, 2208
Internal hemorrhoids. *See* Hemorrhoids
International Academy of Biological Dentistry and Medicine, 2:1077
International Academy of Compounding Pharmacists (IACP), 2:1110
International Alliance of Healthcare Educators (IAHE), 1:162
International Association of Infant Massage (IAIM), 2:1172, 1173
International Association of Professional Natural Hygienists (IAPNH), 2:814
International College of Applied Kinesiology (ICAK), 1:128
International Committee on Taxonomy of Viruses, 2:1037
International Food Information Council, 2:874
International Foundation for Homeopathy, 2:1088, 1092, 1096
International Fragrance Research Association, 1:320
International Headaches Society, 2:1001
International Institute of Infant Massage, 2:1173
International Institute of Reflexology, 3:1896
International Iridology Research Association (IIRA), 2:1212, 1215
International Jojoba Export Council, 2:1242
International Journal of Cancer, 3:1475
International Journal of Food Microbiology, 3:1640
International Journal of Sports Nutrition, 4:2314
International Myomassethics Federation, Inc., 4:2146
International Programme on Chemical Safety, 1:561
International School of Shiatsu, 4:2047
International Scientific Symposium on Tea and Human Health, 4:2220
International Shintaido Federation, 4:2056, 2057
International Somatics Congress, 3:1953
International Symposium on Cactus Pear and Nopalitos Processing and Uses, 3:1810
International Therapy Examinations Council, 3:1960
International Trepanation Advocacy Group (ITAG), 4:2265, 2266
International Units (IUs)
beta carotene, 1:228
vitamin A, 4:2333
vitamin D, 4:2346
Internet
botanical medicine, 1:319–320
herbal medicine, 2:1052
tinnitus therapy, 4:2243
Interpersonal psychotherapy, for seasonal affective disorder, 4:2008
The Interpretation of Dreams (Freud), 3:1847
Interscience Conference on Antimicrobial Agents and Chemotherapy of 2006, 2:1189
Interstitial cystitis, 2:**1201–1203;** 3:1530
Intertrigo, diaper rash from, 2:694, 695
Interventions, for alcoholism, 1:45
Intestinal dysbiosis. *See* Dysbiosis
Intestinal flora
dysbiosis and, 2:722–724
rose hips for, 3:1948
spirulina and, 4:2123
Intestinal flu. *See* Gastroenteritis
Intestinal obstructions. *See* Obstructions
Intestinal perforations. *See* Perforations
Intestinal toxemia, 2:678
Intestinal worms. *See* Worms
Intestine-Breaking Plant. *See* Thunder god vine
Intractable seizures, 2:778–779
Intralesional injection, for acne, 1:9
Intramural uterine fibroids, 4:2301
See also Uterine fibroids
Intraneural spread, of meningitis, 3:1471
Intraocular eye pressure, glaucoma and, 2:933, 934
Intrauterine devices (IUDs)
for contraception, 1:486
for dysmenorrhea, 2:730
infertility and, 2:1178
pelvic inflammatory disease and, 3:1723

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Intravenous fluid therapy. *See* Fluid therapy
Intravenous pyelograms (IVPs)
bladder cancer, 1:280
kidney stones, 2:1277
Intuitive breathing, 1:330–331
Inula helenium. *See* Elecampane
Inulin
calcium and, 1:380
from chicory, 1:482
for inflammatory bowel disease, 2:1184
Invanz, for pneumonia, 3:1772
Invasive candidiasis, 4:2403, 2404, 2405
Inventories, clinical. *See* Psychological tests
Inverse psoriasis, 3:1836
Iodine, 2:**1203–1206,** 1204*t*
in bladderwrack, 1:287
bugle weed and, 1:351
Hashimoto's thyroiditis and, 2:990
hypothyroidism, 2:1150
in kelp, 2:1268, 1269
leukemia, 3:1333
lung cancer, 3:1371
in sargassum seaweed, 4:1975, 1976
as trace mineral, 1:462, 463
Iodine deficiency disorders, 2:1204, 1205; 4:1975, 1976
Iodine Network, 2:1205
IOM. *See* Institute of Medicine
Ionizing radiation. *See* Radiation injuries
IP6. *See* Inositol
Ipecac, 2:**1206–1209**
activated charcoal and, 1:457, 458; 2:1207–1208
chemical poisoning, 1:472
food poisoning, 2:862
gastroenteritis, 2:907
as homeopathic remedy, 2:1084*t*, 1206, 1207, 1208
morning sickness, 3:1800
motion sickness, 3:1521
nausea, 3:1583
vomiting, 4:2358
wheezing, 4:2372
whooping cough, 4:2380
Ipratropium bromide, for common cold, 1:592
Ipriflavone, 2:**1209–1211**
Iridiotomy, for glaucoma, 2:934
Iridology, 2:**1212–1215,** *1213*
Iris analysis. *See* Iridology
Irish daisy. *See* Dandelion
Irish moss, 2:705, 1220
Iron, 2:**1215–1218,** 1215*t*
ADHD, 1:177
adolescents, 4:2201
anemarrhena and, 1:81
anemia, 1:85
in bonemeal, 1:305
canker sores, 1:399
childhood nutrition and, 1:493
chronic fatigue syndrome, 1:532
copper and, 1:603, 605
endometriosis, 2:759
fatigue, 2:816
hair loss, 2:984
hearing loss, 2:1009
heavy metal poisoning, 2:1027
lacto-ovo vegetarianism and, 3:1303
lead poisoning, 3:1318, 1319
menopause and, 3:1474
menstruation disorders, 3:1482, 1483
recommended amounts, 2:1215*t*, 1216
seniors, 4:2017
in spirulina, 4:2123
toxicity, 1:463
as trace mineral, 1:462
veganism and, 4:2322
vegetarianism and, 4:2327
Iron deficiency anemia
copper and, 1:603
overview, 1:82–83; 2:1216
treatment, 1:85, 86; 2:1215–1217
Iron Filings Combination, for bipolar disorder, 1:257
Iron phosphate, in cell salt therapy, 1:432, 433
Ironson-Woods Spirituality-Religion Index, 3:1795
Irritable bowel syndrome (IBS), 2:**1218–1222**
acidophilus for, 1:4, 5
apitherapy for, 4:2331
artichoke for, 1:149
cramp bark for, 1:622, 623
guided imagery for, 3:1508
high fiber diet and, 2:1068
ignatia for, 2:1157
lipase for, 3:1350
lysimachia for, 3:1390
noni for, 3:1605
peppermint for, 2:704; 3:1729, 1730, 1731
probiotics for, 3:1306, 1819
psyllium for, 3:1850
Russian massage for, 3:1959
Saccharomyces boulardii for, 4:1963
spearmint for, 4:2119
valerian for, 4:2312
wormwood for, 4:2395
Irritable uterus, black haw for, 1:276
Irritant contact dermatitis. *See* Contact dermatitis
Isabella (queen), 3:1949
Isala Clinics, 1:529
Iscador, 1:281; 3:1510, 1511
Ischemia, 2:**1222–1227,** *1223;* 4:2221
Ischemic strokes, 4:2154
See also Strokes
Ishizuka, Sagen, 3:1395
Islamic medicine. *See* Unani-tibbi
Isoflavones
cholesterol control, 1:520
in kudzu, 2:1291, 1292
natural hormone replacement therapy and, 3:1573–1574
osteoporosis, 3:1665
soy products, 1:107; 4:2115, 2116
Isoniazid, for tuberculosis, 4:2277, 2340
Isopropyl alcohol, for swimmer' ear, 4:2177, 2178
Isoquinolone alkaloids
barberry, 1:202
bloodroot, 1:296–297
chelidonium, 1:466
Isotretinoin
acne, 1:8–9
psoriasis, 3:1838
rosacea, 3:1946
Israpidine, for Parkinson's disease, 3:1708
Issels' whole body therapy, 3:1492
ITAG (International Trepanation Advocacy Group), 4:2265, 2266
Italian diet. *See* Mediterranean diet
Italian honeysuckle. *See* Honeysuckle
Itching, 2:**1227–1230**
chickenpox and, 1:477, 478
chickweed for, 1:480
cnidium seeds for, 1:551
lavender for, 3:1311
lice infestations and, 3:1337
peppermint for, 3:1731
pityriasis rosea and, 3:1760
plantain for, 3:1764
scabies and, 4:1981, 1982
sweet clover for, 4:2175
thuja for, 4:2232
ITL Cancer Clinic, 2:1159
IUDs. *See* Intrauterine devices
IUs. *See* International Units
Ivermectin
lice infestations, 3:1340
scabies, 4:1982–1983
IVF (in vitro fertilization), 1:441; 2:1181–1182
IVPs. *See* Intravenous pyelograms
Iwa-benkeior. *See* Rhodiola rosea
Ixeris chinensis, for cirrhosis, 1:548
Iyengar, B. K. S., 2:993; 4:2412
Iyengar yoga, 2:804, 993; 4:2412

J

Jack, Alex, 1:396
Jack-in-the-pulpit tuber, for tetanus, 4:2216
Jacob, Stanley, 3:1530, 1531

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Jacobs, G., 4:2023
Jacobson, Edmund, 3:1904
Jacuzzi baths, 2:1120–1121
See also Hydrotherapy
JAMA. See Journal of the American Medical Association
Jamaican dogwood, 2:**1231–1232**
knee pain, 2:1283
tremors, 4:2263
whooping cough, 4:2379
James's tea. *See* Ledum
Janov, Arthur, 3:1848
Japan Pharmaceutical Association, 2:1257
Japanese acupuncture, 1:17
Japanese bunching onion. *See* Scallion
Japanese diet
kelp in, 2:1269
shiitake mushroom in, 4:2049
Japanese herbal medicine. *See* Kampo medicine
Japanese history, 3:1436, 1863
Japanese honeysuckle. *See* Honeysuckle
Japanese Ministry of Health and Welfare, 4:2046
Japanese mint, 4:2117
Japanese Pharmacopoeia (JP), 1:539
Japanese quince, for muscle cramps, 3:1550
Japanese wasabi. *See* Wasabi
Jarisch-Herxheimer reaction, 4:2185
Jartoux, Petrus, 2:924
Jarvis, DeForest Clinton, 1:122–123
Jasmine
jock itch, 2:1240
menstruation disorders, 3:1483
rashes, 3:1882
sexual dysfunction, 4:2033
Jatamamsi, 2:988; 4:2085
Jaundice, 2:*1232*, **1232–1237**
boswellia for, 1:314
chelidonium for, 1:466
chicory for, 1:481, 482
Chinese skullcap for, 4:2076
eyebright for, 2:807
gardenia for, 2:893
gentiana for, 2:916
hepatitis and, 2:1038
horehound for, 2:1102
from mononucleosis, 3:1514
ox-eye daisy for, 1:536
Rh factor and, 1:441
rhubarb for, 3:1934
sickle cell anemia and, 4:2064
turmeric for, 4:2280
wormwood for, 4:2396
Jaundice root. *See* Goldenseal
Jehovah's Witnesses, hypnotherapy and, 2:1142
Jellyfish stings, 1:260, 262
Jenner, Edward, 2:1085
Jenny, Hans, 1:649
Jensen, Bernard, 2:1212
Jerrey Society for Parapsychology, 2:1279
Jet lag, 2:**1237–1239**
light therapy for, 2:1239; 3:1344
melatonin for, 2:1238–1239; 3:1459
Jewelweed. *See* Impatiens
Jewish people
radiation injuries, 3:1873
spiritual healing and, 3:1793, 1795
Jew's myrtle. *See* Butcher's broom
Ji Xue Teng, for systemic lupus erythematosus, 4:2188
Jian Pi Ling, for inflammatory bowel disease, 2:1184
Jian Pi Wan, for diarrhea, 2:698
Jian Xiang, for pleurisy, 3:1768
Jiang huang. *See* Turmeric
Jiangsu Key Laboratory of Carcinogenesis and Intervention, 2:891
Jie Du Cha Ji, for rashes, 3:1809, 1882
Jie geng, 1:77; 3:1768
Jin (soft tissues), Chinese massage and, 1:499
Jin Gui Shen Wan, for diabetes, 2:689
Jin Huang San, for Lyme disease, 3:1386
Jin yin hua. *See* Honeysuckle
Jing, 1:613; 2:795
See also Yin
Jing luo. *See* Meridians
Jivantal taila oil, for hyperopia, 2:1127
Jnana yoga, 4:2412
Job's tears. *See* Coix
Jock itch, 2:**1239–1241**, *1240*
neem for, 3:1588
tea tree oil for, 4:2198
Joe Pye weed. *See* Gravel root
Johanniskraut. *See* St. John's wort
Johns Hopkins Health Alerts, 4:1979
Johns Hopkins University
chronic fatigue syndrome, 1:532
irritable bowel syndrome, 2:1219
prostate enlargement, 3:1832
t'ai chi, 4:2193
tuberculosis, 4:2277
Joint pain. *See* Arthralgia
Joint replacement surgery, for rheumatoid arthritis, 3:1927
Jois, K. Patabhi, 2:993
Jojoba oil, 2:**1241–1243**
Jones, Lawrence, 3:1648
Jones, T. Duckett, 3:1922
Jones criteria for rheumatic fever, 3:1922
Josephus (historian), 1:200
Journal of Advanced Nursing, 3:1730
Journal of Agricultural and Food Chemistry, 4:2221
Journal of Alternative & Complementary Medicine, 1:333
Journal of Alternative and Complementary Medicine, 2:747
Journal of Alzheimer's Disease, 1:642
Journal of American Pharmacists Association, 3:1812
Journal of Anthroposophical Medicine, 1:104
Journal of Antimicrobial Chemotherapy, 3:1866
Journal of Applied Microbiology, 3:1640
Journal of Clinical Investigation, 1:642; 4:2314
Journal of Clinical Psychopharmacology, 4:2132
Journal of Ethnopharmacology
cuscuta, 1:646
cyperus, 1:651
elder flower, 2:747
Korean ginseng, 2:928
saffron, 4:1968
Journal of Family Practice, 4:2198, 2224
Journal of General Internal Medicine, 4:1976
Journal of Gerontology, 4:2047
Journal of Medical Research, 2:1231
Journal of Naturopathic Medicine, 1:264
Journal of Nurse-Midwifery, 1:298; 4:2047
Journal of Nutrition, 2:874
Journal of Occupational & Environmental Medicine, 1:510
Journal of Orthopaedic and Sports Physical Therapy, 2:1032; 3:1943
Journal of Pain and Symptom Management, 4:2019
Journal of Parenteral and Enteral Nutrition, 1:225
Journal of Pediatrics, 4:1963
Journal of Pharmacy and Pharmacology, 2:996
Journal of the American Academy of Dermatology, 4:2030
Journal of the American College of Nutrition, 1:5
Journal of the American Geriatrics Society, 3:1736
Journal of the American Medical Association (JAMA)
antioxidant study, 1:109
Ayurvedic medicine, 3:1690
contact dermatitis, 1:601
ephedra, 3:1624
flaxseed, 2:847
Hoxsey formula, 2:1113

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Journal of the American Medical Association (JAMA) (continued)
iridology, 2:1214
kola nuts, 2:1286, 1287
low fat diets, 3:1817
moxibustion, 3:1528, 1529, 1533
Ornish diet, 3:1645
root canals, 2:1075
therapeutic touch study, 1:184
Journal of the American Physical Therapy Association, 2:1032; 3:1943
Journal of the Canadian Medical Association, 4:2225
Journal of the Council on Nutrition of the American Chiropractic Association, 2:722
Journal of the New Zealand Medical Association, 1:369
Journal therapy, 2:**1243–1245**
auditory integration training and, 4:2110
cognitive-behavioral therapy and, 1:219
depression, 2:670
insomnia, 2:1195
sickle cell pain, 4:2064
stress, 4:2152
Journals, food. *See* Food diaries
JP (Japanese Pharmacopoeia), 1:539
JRA. *See* Juvenile rheumatoid arthritis
Ju-byed (Tibetan medicine), 4:2239
Ju Hong. *See* Tangerine peel
Ju jua. *See* Chrysanthemum flower
Judo, 3:1437–1438
Juglans nigra. See Black walnut
Juglone, in black walnut, 1:279
Juice extraction
nettle, 3:1592
parsley, 3:1713
prickly pear cactus, 3:1812
wheat grass, 4:2370
Juice extractors, 2:1246, 1247
Juice fasts, 2:813, 1246–1247, 1248
Juice therapies, 2:**1245–1249,** 1245*t*
cirrhosis, 1:547
edema, 2:746
emphysema, 2:754
Gerson therapy and, 1:395; 2:919–920
hangovers, 2:988
headaches, 2:1004
heartburn, 2:1024
jaundice, 2:1236
juvenile rheumatoid arthritis, 2:1253
leukemia, 3:1334
lung cancer, 3:1371
rashes, 3:1882
senior nutrition and, 4:2015
stomachaches, 4:2144
tuberculosis, 4:2276
varicose veins, 4:2317
vomiting, 4:2358, 2359
wheat grass in, 4:2370
whooping cough, 4:2380
Jujitsu, 3:1438
Jung, Carl, 3:1845
Jungian analysis, 2:656–657; 3:1845
Juniper, 2:**1249–1250**
buchu with, 1:348
cuts and scratches, 1:648
epididymitis, 2:775
fibromyalgia, 2:840
in hydrotherapy, 2:1121, 1122
juvenile rheumatoid arthritis, 2:1253
multiple sclerosis, 3:1543
rheumatic fever, 3:1922
Juniperus communis. See Juniper
Juvenile macular degeneration, 3:1400
See also Macular degeneration
Juvenile-onset diabetes. *See* Diabetes mellitus
Juvenile rheumatoid arthritis (JRA), 1:310; 2:**1251–1254**

K

Kaa he-he. *See* Stevia
Kabat-Zinn, Jon, 3:1450, 1507
Kaempferols, 1:247
Kahunas, 2:1118; 3:1358
Kaiser Permanente, 1:156
Kalana hula, 2:1118
Kalara. *See* Bitter melon
Kali bichromium, 2:**1255–1256**
bronchitis, 1:340
headaches, 2:1004
in homeopathy, 2:1084*t*
knee pain, 2:1283
sinus infections, 4:2069
whooping cough, 4:2379
Kali carbonicum
asthma, 1:157
premenstrual syndrome, 3:1806
whooping cough, 4:2379
Kali iodatum, for Ménière's disease, 3:1466
Kali mur, in cell salt therapy, 1:432
Kali phosphoricum
in cell salt therapy, 1:432, 433
halitosis, 2:985
obsessive-compulsive disorder, 3:1629
Kali sulph, in cell salt therapy, 1:432
Kalmegh, for sinus infections, 4:2069
Kama dudha, for hangovers, 2:988
Kampo medicine, 2:**1256–1258**
cyperus in, 1:651
jock itch, 2:1240
sleep apnea, 4:2080
Kane, Emily, 1:369
Kanglaite, 1:558
Kanin. *See* Quan yin
Kannon. *See* Quan yin
Kano, Jigoro, 3:1438
Kansas Medical Center, 2:923
Kanzeon. *See* Quan yin
Kaohsiung University, 1:646
Kapha dosha
overview, 1:192, *192,* 193, 193*t*
panchakarma, 3:1689
Kaposi's sarcoma, 1:35; 2:**1258–1259**
Karate, 3:1436, 1437
Kariyat. *See* Andrographis
Karma, 3:1717, 1718
Karma yoga, 4:2412
Kashin-Beck disease, 4:2010
Kashuu. *See* Fo ti
Kasturba Medical College, 2:953
Katz, Jack, 1:179
Katz, Richard, 2:849, 851
Kava kava, 2:*1260,* **1260–1263,** *1261, 1262*
anxiety, 1:116
interstitial cystitis, 2:1202
pain, 3:1684
premenstrual syndrome, 3:1805, 1806
smoking cessation, 4:2090*t,* 2093
substance abuse, 4:2161
UTIs, 1:285
Kavalactones, 2:1261
KBG (Keishi-bukuryo-gan), for uterine fibroids, 4:2302
Kegel, Arnold M., 2:1263, 1264
Kegel exercises, 2:**1263–1266;** 4:2292, 2293
Kegel perineometer, 2:1263–1264
Keishi-bukuryo-gan (KBG), for uterine fibroids, 4:2302
Kelley, William Donald, 2:1266
Kelley-Gonzalez diet, 2:**1266–1267;** 3:1492
Kellogg, John Harvey, 3:1578, 1613; 4:2325
Kellogg, Will Keith, 3:1578; 4:2325
Kelp, 2:*1268,* **1268–1270**
gonorrhea, 2:950
radiation injuries, 3:1876
See also Bladderwrack
Kendo, 3:1438
Kennedy, John F., 4:2269
Kenner, Dan, 1:279
Keoxifene (raloxifene), for osteoporosis, 3:1477
Keppra (levetiracetam), for epilepsy, 2:778
Keratoconus, for astigmatism, 1:159, 160
Keshan disease, 4:2010
Kessler, David, 4:2139
Ketoacidosis
with Atkins diet, 1:171
diabetes and, 2:685, 686, 687

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Ketoconazole
cradle cap, 1:620
dandruff, 2:661
fungal infections, 2:877
vaginitis, 4:2310
Ketogenic diets
Atkins diet, 1:169–173
cerebral palsy, 1:444
epilepsy, 2:777–778
medium-chain triglycerides and, 3:1456, 1457
ovarian cancer and, 3:1668
Ketoprofen, for osteoarthritis, 3:1657
Ketosis
fasting, 2:813
South Beach diet, 4:2113, 2114
Ketostix diabetes tests, 2:687
Keys, Ancel, 3:1453
Khella, 2:**1270–1272**
Khellin, for hay fever, 1:55
Khoikhoi people, buchu use, 1:347
mKhris-pa, 4:2239–2240
Khyab-byed (Tibetan medicine), 4:2239
Ki. *See* Chi
Kidney diseases
alisma for, 1:52
anemarrhena for, 1:80
cornsilk for, 1:611
cuscuta for, 1:646
devil's claw for, 2:680
edema from, 2:745
epimedium for, 2:781
fo ti for, 2:854
Gerson therapy for, 2:919
gravel root for, 2:797
hemolysis and, 2:1234
homeopathy for, 2:1094
horsetail for, 2:1106
hypertension and, 2:1132
Iceland moss for, 2:1155
juniper for, 2:1249
Kampo medicine and, 2:1257
kola nuts for, 2:1287
lacto-ovo vegetarianism for, 3:1302
linoleic acid for, 3:1348
lycium fruit for, 3:1376
lycopodium for, 3:1380
marsh mallow for, 3:1435
motherwort for, 3:1518
neem for, 3:1589
nettle for, 3:1592, 1593
neural therapy for, 3:1594
nutmeg for, 3:1610
ophiopogon for, 3:1637, 1638
red cedar for, 3:1889
rhubarb for, 3:1934
schisandra for, 4:1989, 1990
sheep sorrel for, 4:2042
sickle cell anemia and, 4:2064
soy protein for, 4:2115
squawvine for, 4:2129
systemic lupus erythematosus and, 4:2187
vegetarianism for, 4:2326
yucca for, 4:2418
Kidney infections, 2:*1272*, **1272–1275**
defined, 1:283
prostate enlargement and, 3:1830, 1831, 1832
uva ursi for, 4:2305
Kidney stones, 2:**1275–1279,** *1276, 1277*
cranberry for, 1:625
Crohn's disease and, 1:632
fenugreek for, 2:826
goldenrod for, 2:945, 946, 947
gout and, 2:956
horsetail for, 2:1106
khella for, 2:1271
lithotripsy for, 2:1274
magnesium for, 3:1405
Mexican yam for, 3:1497
oak for, 3:1620
parsley for, 3:1712
potassium for, 3:1787
probiotics for, 3:1820
pyridoxine for, 3:1857
scallion for, 4:1984
uva ursi for, 4:2305
veganism for, 4:2319
vegetarianism for, 4:2326
Kim, Christopher M.H., 1:121
Kinesiology, applied. *See* Applied kinesiology
Kinetic awareness, 3:1526
King, Serge Kahili, 2:1118
King Abdul Azeez University, 4:2290
King Faisal University, 1:273
King's clover. *See* Sweet clover
King's College, 1:273; 4:2151
King's crown. *See* Cramp bark; Rhodiola rosea
King's curse. *See* Prince's pine
Kinnikinnick. *See* Uva ursi
Kirlian, Semyon, 1:182; 2:1279
Kirlian, Valentina, 1:182; 2:1279
Kirlian photography, 1:182; 2:*1279*, **1279–1281,** *1280*
Kirtana bhakti, 1:236
Kissing disease. *See* Mononucleosis
Klamath weed. *See* St. John's wort
Klebsiella pneumoniae, 2:965; 3:1640
Klonopin. *See* Clonazepam
Knee-chest yoga position, for constipation, 1:599
Knee pain, 2:*1281*, **1281–1284**
eucommia bark for, 2:795
fo ti for, 2:855
ginger for, 2:921
glucosamine/chondroitin for, 3:1685
trigger point therapy for, 4:2270
Kneeholm/knee holly. *See* Butcher's broom
Kneipp, Sebastien, 2:1119–1120, 1284–1285, 1286, *1286;* 3:1580
Kneipp School of Physiotherapy, 2:1285
Kneipp wellness, 2:*1284*, **1284–1286,** *1286*
Knight's milfoil. *See* Yarrow
Knit back. *See* Comfrey
Knitbone. *See* Comfrey
Knock knees, heel spurs and, 2:1029
Kobe Pharmaceutical University, 3:1412
Koch, William, 3:1679
Kola nut, 2:**1286–1289,** *1287*
binge eating disorder, 1:241
bipolar disorder, 1:257
caffeine in, 1:373, 374; 2:1286, 1287
Kombucha, 2:724, *1289*, **1289–1291**
Koning, Fritz, 2:945
Koop, C. Everett, 3:1622
Koosumbha. *See* Safflower flower
Koplik's spots, 3:1445
Kordich, Jay ("Juiceman"), 2:1246
Korean ginseng, 2:**926–929,** *927*
vs. American ginseng, 2:924, 925
anemia, 1:85
angina, 1:91
anxiety, 1:116
asthma, 1:156
atherosclerosis, 1:166
binge eating disorder, 1:241
bipolar disorder, 1:257
dementia, 2:665
fatigue, 2:817
hypothyroidism, 2:1150
impotence, 2:1165
iron in, 2:1217
natural hormone replacement therapy and, 3:1573
panic disorders, 3:1698
phobias, 3:1743
postpartum depression, 3:1781
stomachaches, 4:2143
stress, 4:2152
in Sun's soup, 4:2171
Korean mint. *See* Agastache
Korsakoff's syndrome. *See* Wernicke-Korsakoff syndrome
Kou chi tza, for night blindness, 3:1603
Kozyrskyj, Anita, 1:156
Kraft Foods, 4:2112
Krallendon, 1:422
Kramer, Edith, 1:146
Krameria, for worms, 4:2393
Krebs, Ernst, 1:129
Krieger, Dolores, 1:183; 4:2222, 2223
Kripalu yoga, 2:993
Krishna (Hindu deity), 1:235

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Kristin Brooks Hope Center, 3:1782
Krivorotov, Alexei, 2:1279
Ku Lian Gen Pi, for worms, 4:2393
Kuan dong hua. *See* Coltsfoot
Kübler-Ross, Elisabeth, 2:763
Kudzu, 2:**1291–1293**
Kuei-chih-fu-ling-wan, for uterine fibroids, 4:2302
Kui Jie Qing, for inflammatory bowel disease, 2:1184
Kun Ming Shan Hai Tang Pian, for systemic lupus erythematosus, 4:2188
Kundalini energy, 3:1792
Kundalini yoga, mind's eye and, 4:2264
Kung fu, 3:1437
Kunz, B., 3:1898
Kunz, Dora, 1:183; 4:2222, 2223
Kunz, K., 3:1898
Kushi, Michio, 1:396
Kushta. *See* Aucklandia
Kust. *See* Aucklandia
Kuth. *See* Aucklandia
Kutki, for stomachaches, 4:2144
Kwannon. *See* Quan yin
Kwassan. *See* Kombucha
Kwiatkowska, Hanna Yaxa, 1:146
Kyl, John, 4:2139
Kyphoplasty, 3:1366
Kytril (granisetron), for nausea, 3:1583

L

L-acetylcarnitine. *See* Acetyl-L-carnitine
L-arginine. *See* Arginine
L-carnitine. *See* Carnitine
L-cysteine. *See* Cysteine
L-dopa. *See* Levodopa
L-glutamine. *See* Glutamine
L-glycine. *See* Glycine
Laban, Rudolf, 3:1524
Laban movement analysis, 3:1524
Labeling
  botanical medicines, 1:319
  chondroitin, 1:524–525
  fructooligosaccharides, 2:874
  gluten-free diet and, 2:943
  Hoxsey formula and, 2:1114
  kola, 1:374
  milk thistle, 3:1504
  organic foods, 3:1642, 1643
  pau d'arco, 3:1720
  plantain, 3:1765
  probiotics, 3:1821
  St. John's wort and, 4:2133
  veganism and, 4:2321
  See also NF labeling; USP labeling
Labial herpes. *See* Cold sores
Labor (obstetrics). *See* Childbirth
Laboratory tests
  AIDS, 1:35
  allergies, 1:54
  amenorrhea, 1:71–72
  breast cancer, 1:324
  cancer, 1:387–388
  chlamydia, 1:513–514
  cirrhosis, 1:546–547
  colorectal cancer, 1:579
  detoxification and, 2:678
  diabetes, 2:687
  diarrhea, 2:696
  environmental therapy, 2:766
  fungal infections, 2:877
  gastritis, 2:902
  headaches, 2:1003
  hypercortisolemia, 2:1125
  hyperthyroidism, 2:1138
  indigestion, 2:1169
  infections, 2:1175
  insulin resistance, 2:1199
  iodine and, 2:1205
  jaundice, 2:1234
  kidney infections, 2:1273
  kidney stones, 2:1277
  malaria, 3:1416
  memory loss, 3:1462
  neck pain, 3:1585
  peptic ulcers, 4:2285
  polycystic ovarian syndrome, 3:1777–1778
  rheumatoid arthritis, 3:1926
  scarlet fever, 4:1987
  sickle cell anemia, 4:2064
  syphilis, 4:2183
  systemic lupus erythematosus, 4:2188
  UTIs, 1:284
  vaginitis, 4:2308–2309
  whooping cough, 4:2379
  See also specific types
Labrador tea. *See* Ledum
The Labyrinth Society, 3:1298
Labyrinth walking, 3:**1295–1298,** *1296*
Labyrinthectomy, for Ménière's disease, 3:1467
Lacerations, 4:2398
  See also Wounds
Lachesis, 3:**1298–1300,** *1299*
  in homeopathy, 2:1084*t*
  menopause, 3:1475
  menstruation disorders, 3:1483
  sore throat, 4:2106
  strep throat, 4:2148
  tonsillitis, 4:2245
Lactaid, for nausea, 3:1583
Lactase, 2:704, 768
Lactation. *See* Breast-feeding
Lacto-ovo vegetarianism, 3:**1300–1304**
Lactobacillus acidophilus. See Acidophilus
Lactobacillus bifidus
  diarrhea, 2:698
  hangovers, 2:988
  as probiotic, 3:1819, 1820–1821
  vaginitis, 4:2309
Lactobacillus bulgaricus
  acne, 1:8
  food poisoning, 2:861, 862
Lactobacillus GG, 3:1819, 1820–1821, 1822
Lactobacillus plantarum 299v, 3:1819, 1822
Lactobacillus species, 3:*1304,* **1304–1307**
  as probiotic, 3:1819, 1820–1821
  for systemic lupus erythematosus, 4:2188
  for vaginitis, 4:2309
  wild oat and, 4:2385
  for yeast infections, 4:2404
  See also specific types
Lactoferrin, in colostrum, 1:583
Lactose intolerance, 3:1350, 1820
Lactuca virosa, for knee pain, 2:1283
Lactucin, 1:482
Lactucopicrin, 1:482
Lactulose
  constipation, 1:599–600
  inflammatory bowel disease, 2:1184
  irritable bowel syndrome, 2:1221
Lad, Vasant, 3:1691
Lady's foxglove. *See* Mullein
Lady's mantle, 2:1180; 3:1475
Lady's purse. *See* Shepherd's purse
Lady's slipper
  binge eating disorder, 1:241
  bipolar disorder, 1:257
  postpartum depression, 3:1781
Lady's thistle. *See* Milk thistle
Laënnec's cirrhosis, 1:545
  See also Cirrhosis
Laetrile. *See* Apricot seed
Lafitau, Joseph, 2:924
Lahn, Henry, 2:1212
Lake, Medicine Grizzly Bear, 3:1565
Lamb's mint. *See* Spearmint
Lamictal, for epilepsy, 2:778
Lammers, Arthur, 1:425
Lan he lian. *See* Andrographis
LANAP (laser-assisted new attachment procedure), 2:978
Lanatoside C, 2:707
Lance-leaf plantain. *See* Plantain
Lancet, 3:1645, 1824, 1884
Landau arousal response, 4:2103
Landes pine. *See* Pine bark extract
Landmarks (eardrum), 2:733
Lane, William, 1:410

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Language development, auditory integration training and, 1:180, 181
Language disorders. *See* Communication disorders
LantusSoloStar (insulin delivery), 2:690
Lao Tzu, 4:2193
Lapacho. *See* Pau d'arco
Laparoscopic Nissen fundoplication, 2:1024
Laparoscopy
  endometriosis, 2:759
  gastroesophageal reflux, 2:1024
  menstruation disorders, 3:1481
  ovarian cancer, 3:1669
  ovarian cysts, 3:1674, 1677
  pelvic inflammatory disease, 3:1724
  peptic ulcers, 4:2286
Lapatinib, for breast cancer, 1:326
Lappé, Frances Moore, 3:1301
Lapuh. *See* Burdock root
Laradopa. *See* Levodopa
Larch
  common cold, 1:591
  dysbiosis, 2:723
  as flower remedy, 1:198; 2:850*t*, 851
Large-headed atractylodes. *See* Atractylodes
Large-hip rose. *See* Rose hips
Large parasites, defined, 3:1702
Lariam (mefloquin), for malaria, 3:1417
Laryngitis, 3:**1307–1310**
  coltsfoot for, 1:585
  ferrum phosphoricum for, 2:828
  grapefruit seed extract for, 2:965
  ophiopogon for, 3:1637
  plantain for, 3:1764
  slippery elm for, 4:2088
Laryngotracheobronchitis, 1:635
  See also Croup
LASEK (Laser-assisted subepithelial keratomileusis), 1:160
Laser acupuncture, for carpal tunnel syndrome, 1:408
Laser angioplasty, 2:1019, 1226
Laser-assisted in situ keratomileusis (LASIK)
  astigmatism, 1:160
  hyperopia, 2:1127
  myopia, 3:1556
Laser-assisted new attachment procedure (LANAP), 2:978
Laser-assisted subepithelial keratomileusis (LASEK), 1:160
Laser-assisted uvulopalatopharyngoplasty, 4:2098
Laser resurfacing, 1:231
Laser treatment
  acne, 1:9
  canker sores, 1:399
  cataracts, 1:418
  cold sores, 1:563
  endometriosis, 2:760
  genital warts, 2:914
  glaucoma, 2:934
  gum diseases, 2:978
  heart disease, 2:1019
  light therapy, 3:1344, 1344*t*
  pinched nerves, 3:1754
  psoriasis, 3:1837
  retinal detachment, 3:1916
  retinopathy, 3:1919
  rosacea, 3:1946
  snoring, 4:2098
  varicose veins, 4:2318
  warts, 4:2364
LASIK. *See* Laser-assisted in situ keratomileusis
LaStone therapy, 4:2145, 2146
Lasunadivati, for stomachaches, 4:2144
Latakasturi. *See* Psoralea seeds
Latching problems (breast-feeding), 1:328, 329
Late-stage AIDS, 1:34–35
Latency periods
  AIDS, 1:34
  cold sores, 1:562
  genital herpes, 2:910
  Lyme disease, 3:1385
  syphilis, 4:2181
Latent phase (childbirth), 1:483
Lateral epicondylitis. *See* Tennis elbow
Latex layer, aloe, 1:61
Latitude, multiple sclerosis and, 3:1542
Laughter. *See* Humor therapy
Lavandula officinalis. *See* Lavender
Lavender, 3:*1310*, **1310–1312**
  alcoholism, 1:44
  anxiety, 1:115
  aromatherapy uses, 1:137*t*, 139
  asthma, 1:157
  binge eating disorder, 1:241
  bipolar disorder, 1:257
  blisters, 1:290
  boils, 1:303
  bronchitis, 1:340
  childbirth, 1:485
  cradle cap, 1:620
  cuts and scratches, 1:648
  dizziness, 2:714
  eczema, 2:743
  epilepsy, 2:777
  as essential oil, 2:788
  fever, 4:1987
  fibromyalgia, 2:840
  fungal infections, 2:877
  headaches, 2:1004
  holistic dentistry and, 2:1077
  in hydrotherapy, 2:1121, 1122
  hypertension, 2:1133
  infections, 2:1176
  insomnia, 2:1196
  itching, 2:1229
  jock itch, 2:1240
  juvenile rheumatoid arthritis, 2:1253
  knee pain, 2:1282
  laryngitis, 3:1308, 1309
  lice infestations, 3:1338
  low back pain, 3:1365
  Ménière's disease, 3:1466
  menstruation disorders, 3:1483
  mononucleosis, 3:1515
  nausea, 3:1583
  obsessive-compulsive disorder, 3:1629
  ovarian cysts, 3:1676
  panic disorders, 3:1698
  post-traumatic stress disorder, 3:1785
  postpartum depression, 3:1781
  premenstrual syndrome, 3:1806
  rashes, 3:1882
  rheumatic fever, 3:1922
  shingles, 4:2053
  sinus infections, 4:2069
  sleep disorders, 4:2085
  sore throat, 4:2106
  staphylococcal infections, 4:2136
  strep throat, 4:2148
  stress, 4:2151
  wheezing, 4:2372
  whooping cough, 4:2380
  wound care, 1:295
Lavender (color), emotional properties, 1:184
Lavoisier, Antoine, 3:1843
Law of Infinitesimals (homeopathy)
  apis, 1:118
  bryonia, 1:345
  history, 2:1085, 1086, 1089
  kali bichromium, 2:1255, 1256
  lachesis, 3:1299
  ledum, 3:1324
  mercurius vivus, 3:1484, 1485
  prince's pine, 3:1815
  ruta, 3:1960
  sepia, 4:2027
  silica, 4:2066–2067
Law of Similars (homeopathy)
  apis, 1:117–118
  bryonia, 1:345
  cantharis, 1:399
  history, 2:1085–1086, 1089, 1091, 1093
  ipecac, 2:1207
  kali bichromium, 2:1255
  lachesis, 3:1299
  ledum, 3:1324
  mercurius vivus, 3:1484
  miasms theory and, 2:1094
  prince's pine, 3:1815
  ruta, 3:1960

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Law of Similars (homeopathy) *(continued)*
sepia, 4:2027
silica, 4:2066
Lawrence, Kay S., 2:693
Laxatives
detoxification, 2:676*t*, 679
food poisoning, 2:862
hemorrhoids, 2:1033
irritable bowel syndrome, 2:1221
overview, 1:599–600
panchakarma and, 3:1689
psyllium in, 3:1850
See also Constipation
Lay, Edna, 1:628
Lazarev, Nikolai, 4:2165
Lazy eye, 3:**1312–1315,** *1313*
LCR (ligase chain reaction) tests, 1:513–514; 3:1724
LDL cholesterol. *See* Low-density lipoprotein cholesterol
Lead-based paint, 3:1316, 1317, 1318
Lead poisoning, 3:**1315–1320,** 1316*t*
Ayurvedic medicine and, 1:195; 3:1690
calcium supplements and, 1:462
causes, 1:468; 2:1026
contaminated herbal remedies and, 2:1047
dolomite and, 2:716–717
EDTA chelation therapy for, 1:464, 465
gout and, 2:956
kombucha and, 2:1290
ledum and, 3:1325
treatment, 2:1027
Leaky gut syndrome
ankylosing spondylitis and, 1:97
lysimachia for, 3:1390
overview, 3:1818–1819
probiotics for, 3:1818–1820
Learning, plasticity of brain and, 1:180–181
Learning disorders, 3:**1320–1322**
music therapy for, 3:1551
sensory integration disorder and, 4:2025
syntonic optometry for, 4:2179
See also Dyslexia
Lebensbaum. *See* Thuja
Leboyer, Frédéric, 2:1171
Lecithin, 2:854; 3:**1323–1324;** 4:2157
Ledum, 3:*1324,* **1324–1326**
bites and stings, 1:55, 261
contact dermatitis, 1:602
in homeopathy, 2:1084*t*
pain, 3:1685
wounds, 4:2399
Lee, Bruce, 3:1436
Lee, Martin, 4:2191, 2192
Leech Book of Bald, 2:1049
LEEP (loop electrosurgical excision procedure), 1:450
LEET (low-energy emission therapy), for sleep disorders, 4:2085
Leflunomide, for juvenile rheumatoid arthritis, 2:1253
Legionella pneumoniae, grapefruit seed extract for, 2:965
Legionnaire's disease, 3:1770
Legislation, on marijuana, 3:1431, 1432
See also specific legislation
Legumes
anti-inflammatory diet, 1:106
macrobiotic diet, 3:1397
premenstrual syndrome, 3:1805
Lehr, David, 3:1816
Lei gong teng. *See* Thunder god vine
Lei Wan, for worms, 4:2393
Leiden University, 2:945
Leiner's disease. *See* Seborrheic dermatitis
Leiomyomas. *See* Uterine fibroids
Lemon
bites and stings, 1:261
corns and calluses, 1:610
fever, 2:832
gum diseases, 2:978
hangovers, 2:988
jaundice, 2:1236
jock itch, 2:1240
juvenile rheumatoid arthritis, 2:1253
kidney stones, 2:1278
knee pain, 2:1283
rheumatic fever, 3:1922
worms, 4:2393
Lemon balm, 3:*1326,* **1326–1328**
anorexia nervosa, 1:100
bedwetting, 1:213
bronchitis, 1:340
cold sores, 1:563
colic, 1:568
digestion, 2:704
fever, 4:1987
fractures, 2:864
indigestion, 2:1169
insomnia, 2:1196
irritable bowel syndrome, 2:1220
measles, 3:1446
menstruation disorders, 3:1483
nausea, 3:1583
panic disorders, 3:1698
pregnancy, 3:1799
shingles, 4:2052
stomachaches, 4:2144
Lemongrass, 3:*1328,* **1328–1330;** 4:2358
Lennon, John, 3:1395
Lens (eye), 1:416, 418; 3:1554
Lentinan, in shiitake mushroom, 4:2049
Lentinus edodes. See Shiitake mushrooms
Leonurus species. *See* Motherwort
Leopardsbane. *See* Arnica
Leprosy
ashwaganda for, 1:152
gotu kola for, 2:952, 954
grains-of-paradise for, 2:959
kava kava for, 2:1260
psoralea seeds for, 3:1834
thunder god vine for, 4:2234
yohimbe for, 4:2415
Leptaotaenia dissecta. *See* Lomatium
Leptin, obesity and, 3:1626
Lesionectomy, for epilepsy, 2:779
Lesions
cnidium seeds for, 1:551
skin cancer and, 4:2073
yucca for, 4:2418
See also specific types
Lesser dodder. *See* Cuscuta
Lesser periwinkle. *See* Periwinkle
Letrozole, for breast cancer, 1:326
Let's Live (magazine), 3:1806
Leucine, 1:74
Leucoderma, psoralea seeds for, 3:1834
Leukapheresis, 3:1420
Leukemia, 3:**1331–1336**
bone marrow transplantation, 1:392
defined, 1:385
immuno-augmentation therapy and, 2:1160
pau d'arco for, 3:1719
resveratrol for, 3:1913
Leukocytes. *See* White blood cells
Leukocytosis, osha for, 3:1653
Leukorrhea
blessed thistle for, 1:289
Chinese yams for, 1:506, 507
cuscuta for, 1:645
gentiana for, 2:916
goldenseal for, 2:948
gotu kola for, 2:952
lavender for, 3:1311
lysimachia for, 3:1391
oak for, 3:1620
plantain for, 3:1764
Leukotriene modifiers, 1:56, 157
Leveen, Harry, 2:1136
Levetiracetam, for epilepsy, 2:778
Levine, Peter, 3:1785
Levitra (vardenafil)
impotence, 2:1165
prostate enlargement, 3:1832
Levodopa
Parkinson's disease, 3:1708–1709
restless leg syndrome, 3:1911, 1912
Levofloxacin, for gonorrhea, 2:951
Levothyroxine (T4)
Hashimoto's thyroiditis, 2:991
Hashimoto's thyroiditis and, 2:990, 991
hypothyroidism, 2:1151

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

LH (luteinizing hormone), amenorrhea and, 1:71
Li Ching Yun, 2:952
Li Dan Pian, 1:179
LI4 pressure point, 1:14
Lian Fu Wan, 4:2144, 2286
Liberman, Jacob, 1:216
Library vaccines, for AIDS, 1:39
Lice infestations, 3:**1336–1341**
grapefruit seed extract for, 2:966
hyssop for, 2:1152
oregano for, 3:1639
tea tree oil for, 4:2198
LiceFreee, 3:1338
Lichen moss. *See* Usnea
Licorice, 3:*1341*, **1341–1343**
AIDS, 1:36
anemia, 1:85
anxiety, 1:116
asthma, 1:156
binge eating disorder, 1:241
canker sores, 1:398, 399
chronic fatigue syndrome, 1:533
cold sores, 1:563
cough, 1:619
croup, 1:636
cuts and scratches, 1:648
dysmenorrhea, 2:729
eczema, 2:674
fungal infections, 2:877
gastritis, 2:902
hay fever, 1:55; 2:999
heartburn, 2:1023
hepatitis, 2:1039
hot flashes, 2:1109
in Hoxsey formula, 2:1114, 1115
infertility, 2:1180
interstitial cystitis, 2:1202
irritable bowel syndrome, 2:1220
laryngitis, 3:1308, 1309
measles, 3:1446
menopause, 3:1475
menstruation disorders, 3:1482
osteoporosis, 3:1665
pain, 3:1685
panic disorders, 3:1698
peptic ulcers, 4:2285, 2286
phobias, 3:1743
premenstrual syndrome, 3:1805
retinopathy, 3:1919
rheumatoid arthritis, 3:1926
rhinitis, 3:1928
sexual dysfunction, 4:2033
shingles, 4:2052, 2054
sleep disorders, 4:2085
smoking cessation, 4:2093
stomachaches, 4:2144
stress, 4:2152
substance abuse, 4:2161
systemic lupus erythematosus, 4:2188
tonsillitis, 4:2245
wheezing, 4:2372, 2373
whooping cough, 4:2380
See also Deglycyrrhizinated licorice
Licorice mint. *See* Agastache
Lidocaine
canker sores, 1:399
epidydimitis, 2:775
neural therapy, 3:1594
neuralgia, 3:1597
trigger point therapy, 4:2270
Lieberman, Sheri, 1:493; 4:2203
Life energy, 2:761–762
See also Chi; Prana
Life root, for endometriosis, 2:760
Life Sciences (journal), 4:2165
Life skills training, in behavioral therapy, 1:218
Lifestyle changes
angina, 1:92
atherosclerosis, 1:166
biological cancer treatment, 1:395
blood clots, 1:293
emphysema, 2:755–756
fatigue, 2:816
gluten-free diet, 2:944
headaches, 2:1005
heart attacks, 2:1013
heart disease, 2:1018, 1019
heartburn, 2:1025
hiatal hernia, 2:1062
hot flashes, 2:1111, 1112
hypertension, 2:1133
insomnia, 2:1195, 1197
ischemia, 2:1226
low back pain, 3:1365
macrobiotic diet, 3:1395–1396
memory loss, 3:1463
motion sickness, 3:1522
natural hygiene diet, 3:1576–1577
neck pain, 3:1585
neurolinguistic programming for, 3:1598
pain, 3:1686
panic disorders, 3:1698
phobias, 3:1743
polycystic ovarian syndrome, 3:1778
sleep disorders, 4:2084
smoking cessation, 4:2094–2095
sodium reduction, 4:2101
Ligament injuries. *See* Sprains and strains
Ligase chain reaction (LCR) tests, 1:513–514; 3:1724
Light boxes, 3:1345; 4:2007
Light therapy, 3:**1343–1346,** 1344*t*
bulimia nervosa, 1:353
depression, 2:671; 3:1344
insomnia, 2:1196, 1197; 3:1344
jet lag, 2:1239; 3:1344
seasonal affective disorder, 2:671; 3:1344, 1345, 1346; 4:2007
sleep disorders, 4:2085, 2086
Light visors, 3:1345
Lightning reaction, 3:1594
Lignans
flaxseed, 2:846, 847
schisandra, 4:1988–1989
Lignum aquilariae resinatum, for stomachaches, 4:2144
Ligulariopsis shichuana, for ovarian cancer, 3:1671
Ligum dalbergiae odoriferae, for pleurisy, 3:1768
Ligusticum. See Osha
Ligustrum, in herbal cold remedies, 2:1046
Like heals like principle. *See* Law of Similars
Lilium tigrum, for endometriosis, 2:760
Liljequist, Nils, 2:1212
Lillard, Harvey, 1:508
Lilly, John, 4:2021
Lily of the valley, cardiac glycosides from, 2:707
Lily-turf. *See* Ophiopogon
Limbic system, 1:114, *138*
Lime blossom
binge eating disorder, 1:241
bipolar disorder, 1:257
fever, 4:1987
holistic dentistry and, 2:1077
sleep disorders, 4:2085
Lime juice, for vomiting, 4:2359
Lindane, 1:469; 3:1340
Linden
anemia, 1:85
angina, 1:91
anorexia nervosa, 1:100
chronic fatigue syndrome, 1:533
heart attacks, 2:1012
heart disease, 2:1018
migraine, 3:1500
sleep disorders, 4:2085
Linezolid, for pneumonia, 3:1772
Ling, Per Henrik, 2:917; 3:1439, 1959; 4:2171
Ling Yang Gan Mao Pian, for common cold, 1:591
Ling zhi. *See* Ganoderma; Reishi mushroom
Linnaeus, Carolus, 1:413; 3:1325, 1930; 4:2230
Linoleic acid, 3:*1347*, **1347–1349**
in apricot seed, 1:129
as omega-6 fatty acid, 3:1635, 1636
sources, 2:784
Linseed. *See* Flaxseed
Linum usitatissimum. See Flaxseed
Linus Pauling Institute of Science and Medicine, 1:395; 3:1650
Lion's ear/tail. *See* Motherwort
Lion's tooth. *See* Dandelion

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Lioresal (baclofen), 3:1543, 1597
Lipase, 1:431; 2:768; 3:**1349–1352**
Lipid panel tests, 1:519; 3:1778
Lipids (journal), 3:1329
Liposuction, for cellulite, 1:438
Lipotrophic formula, for tuberculosis, 4:2276
Lipotropic agents
  betaine hydrochloride, 1:234
  for endometriosis, 2:759
  for pancreatitis, 3:1695
Lipsky, Peter, 4:2234
Liriope spicata. *See* Ophiopogon
Listening, auditory integration training and, 1:180
Listeria poisoning, 2:859*t*, 907; 3:1470
Lithium
  bipolar disorder, 1:258
  genital herpes, 2:912
  inositol and, 2:1192, 1193
  seasonal affective disorder, 4:2008
Lithotripsy
  gallstones, 2:881
  kidney stones, 2:1274, 1278
  See also Extracorporeal Shock Wave Lithotripsy
Liu Wei Di Huang Wan, for diabetes, 2:689
Live cell therapy. *See* Cell therapy
Liver
  alcohol effect on, 1:42
  arginine and, 1:131
  barberry and, 1:202, 203
  chicory for, 1:482
  choline for, 1:522
  detoxification and, 2:677, 678
  environmental therapy and, 2:766
  gum diseases and, 2:978
  hot flashes and, 2:1110
  lycium fruit for, 3:1376
  lycopodium for, 3:1380
  maitake and, 3:1413
  mistletoe and, 3:1512
  parsley for, 3:1712
  pennyroyal and, 3:1727
  traditional Chinese medicine and, 2:1044
  turmeric for, 4:2280
  uva ursi for, 4:2305
  wormwood for, 4:2396
Liver abscesses, 1:1
Liver cancer
  cirrhosis and, 1:548
  glutathione for, 2:940
  hepatitis and, 2:1038
  hyperthermia for, 2:1137
  lycopodium for, 3:1381
  pyrrolizidine alkaloids and, 1:586, 588
Liver diseases
  ademetionine for, 1:20, 21; 3:1493
  aucklandia for, 1:178–179
  betaine hydrochloride for, 1:234
  black cohosh and, 1:270
  blessed thistle for, 1:288
  burdock for, 1:359
  chelidonium and, 1:467
  Chinese thoroughwax for, 1:504
  dandelion for, 2:659
  devil's claw for, 2:680, 681
  edema from, 2:745
  fo ti for, 2:854
  goldenrod for, 2:947
  gymnema for, 2:980
  Hepar sulphuris for, 2:1036
  homeopathy for, 2:1094
  jaundice and, 2:1234
  Kampo medicine and, 2:1257
  kava kava and, 2:1261, 1262
  linoleic acid for, 3:1348
  lycopodium for, 3:1381
  lycopus for, 3:1383
  lysimachia for, 3:1391
  milk thistle for, 3:1502, 1503
  motherwort for, 3:1518
  night blindness and, 3:1603
  nutmeg for, 3:1610
  ophiopogon for, 3:1637
  peppermint for, 3:1729
  red clover for, 3:1891
  reishi mushroom for, 3:1903
  schisandra for, 4:1990
  sickle cell anemia and, 4:2064
  skullcap and, 4:2077
  Tibetan medicine for, 4:2239
  vitamin E for, 4:2350
  yellow dock for, 4:2406
  yucca for, 4:2418
Liver extracts, for hepatitis, 2:1039
Liver infections, cirrhosis and, 1:545
Liver transplantation, 1:548
Living Foods Program, 4:2381–2383
Living the Therapeutic Touch (Krieger), 4:2223
Livingston Foundation Medical Center, 3:1352, 1353
Livingston-Wheeler, Virginia, 1:390; 3:1352, 1671
Livingston-Wheeler therapy, 1:390; 3:**1352–1353**, 1671
LLLT (low-level laser therapy), for pinched nerves, 3:1754
Lloyd, John, 4:1979
Lobectomy, for lung cancer, 3:1372
Lobel, Matthias de, 3:1353
Lobelia, 3:**1353–1356**, *1354*
  ankylosing spondylitis, 1:97
  asthma, 1:156
  emphysema, 2:754
  pregnancy, 3:1799
  rheumatoid arthritis, 3:1926
  smoking cessation, 4:2090*t*, 2093
  wheezing, 4:2372
  whooping cough, 4:2379
Lobular breast cancer, 1:322
Local anesthetics, for neuralgia, 3:1597
Lockjaw. *See* Tetanus
Loma Linda University, 2:1117; 3:1303
Lomatium, 3:**1356–1358**
  genital warts, 2:914
  laryngitis, 3:1308
  pleurisy, 3:1768
  tonsillitis, 4:2245
Lomilomi, 3:**1358–1359**; 4:2145
London Pharmacopoeia, 3:1728
Loneliness
  Bach flower essences and, 1:198; 2:852
  geriatric massage for, 2:917
Long, Max Freedom, 2:1117–1118
Long dan cao. *See* Gentiana
Long Dan Xie Gan Tang, 2:912; 4:2053
Long purples. *See* Lysimachia
Long-term memory loss, 3:1461
  See also Memory loss
Longevity studies, senior nutrition and, 4:2014
Lonicera species. *See* Honeysuckle
Loomis, Evarts G., 2:813
Loop electrosurgical excision procedure (LEEP), 1:450
Loose bodies, knee pain and, 2:1282
Loperamide
  colitis, 1:571
  diarrhea, 2:698
  irritable bowel syndrome, 2:1221
Loquat, for cough, 1:619
Los Angeles College of Chiropractic and Meta-Response Medicine, 2:937
Lost Horizon (film), 4:2037
Lost Horizon (Hilton), 4:2037
Lotions. *See* Creams and lotions
Lotrimin (clotrimazole), 2:1241; 4:2268
Lotus leaf, for prickly heat, 3:1809
Lotus Sutra, 3:1863
Lou Gehrig's disease, 3:**1359–1362**
  creatine for, 1:629; 3:1361
  glutathione for, 2:940
  Gulf War syndrome and, 2:974
Lou Gehrig's Disease Society, 3:1362
Louisiana State University, 1:529
Lovastatin, 3:1893
Love in winter. *See* Prince's pine
Love leaves. *See* Burdock root
Lovelock, James E., 3:1530
Low back pain, 3:**1363–1367**
  breath therapy for, 1:333
  Chinese foxglove root for, 1:497
  chiropractic for, 1:507, 508–509, 510
  craniosacral therapy for, 1:627
  cuscuta for, 1:645

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

devil's claw for, 2:680
eucommia bark for, 2:795
fo ti for, 2:855
homeopathy for, 2:1094
juniper for, 2:1249, 1250
lemongrass for, 3:1329, 1330
lycopodium for, 3:1380
yoga for, 2:804, 993
Low blood sugar. *See* Hypoglycemia
Low carbohydrate diets
Atkins diet, 1:169–173; 3:1816
vs. Ornish diet, 3:1647
South Beach diet, 4:2111–2115, 2111*t*, 2112*t*
weight loss and, 2:703
Zone diet, 4:2423–2425
Low-density lipoprotein cholesterol
black walnut, 1:278
guggul, 2:970
gymnema, 2:980
heart attacks, 2:1011
heart disease, 2:1016
niacin, 4:2338
notoginseng, 3:1609
omega-3 fatty acids, 3:1631
overview, 1:518, 518*t*, 521
psyllium, 3:1850
red yeast rice extract, 3:1893
soy protein, 4:2115
wild oat, 4:2384
yucca, 4:2418
Low-energy emission therapy (LEET), for sleep disorders, 4:2085
Low fat diets
disease prevention, 3:1614
fibrocystic breast disease, 2:837
heart attacks, 2:1012, 1013
heart disease and, 3:1817
juvenile rheumatoid arthritis, 2:1253
McDougall diet, 3:1443–1444
multiple sclerosis, 3:1543
Ornish diet, 3:1646, 1647
Pritikin diet, 3:1815–1817
for retinopathy, 3:1919
South Beach diet, 4:2111–2115, 2111*t*, 2112*t*
Low-frequency hearing loss, 2:1007–1008
Low glycemic diet, 1:520
Low-grade Squamous Intraepithelial Lesions (LSIL), 1:450
Low-level laser therapy (LLLT), for pinched nerves, 3:1754
Low molecular weight heparin, for deep venous thrombosis, 3:1741
Low natural killer cell disease. *See* Chronic fatigue syndrome
Lower esophageal sphincter, heartburn and, 2:1021, 1024
Lower GI x-ray series
colitis diagnosis, 1:570
colorectal cancer, 1:579–580, 582
Crohn's disease, 1:632
diverticulitis, 2:710
inflammatory bowel disease, 2:1184
LSIL (Low-grade Squamous Intraepithelial Lesions), 1:450
Lu Dou yi, for prickly heat, 3:1809
Lu Gen, 4:2358, 2380
Lucerne. *See* Alfalfa
Lues. *See* Syphilis
Lui, C., 2:928
Lumbar disk herniation, 2:1054, *1054*, 1056
Lumbar pain. *See* Low back pain
Lumbar puncture
leukemia, 3:1333
lymphomas, 3:1420
meningitis, 3:1471–1472
Lumbar supports, 2:1057
Lumbosacral radiculopathy, 4:2000
Lumpy breasts. *See* Fibrocystic breast disease
Lunch recommendations, 1:487*t*; 4:2201–2202
Lunesta (eszopiclone), for sleep disorders, 4:2086
rLung (Tibetan medicine), 4:2239
Lung abscesses, 1:1
Lung biopsy, 3:1370
Lung cancer, 3:**1367–1374,** *1368*
beta carotene and, 4:2093
carotenoids and, 1:406
coix for, 1:558
coltsfoot for, 1:586
flaxseed for, 2:847
folic acid for, 2:856
fritillaria for, 2:869
immuno-augmentation therapy and, 2:1160
resveratrol for, 3:1913
Lung diseases
prince's pine for, 3:1814
red cedar for, 3:1889
rhubarb for, 3:1934
schisandra for, 4:1989
See also specific diseases
Lung glandulars
tuberculosis, 4:2276
whooping cough, 4:2380
Lung transplantation, 2:756
Lung volume reduction surgery, 2:756
Lungwort, for emphysema, 2:754
Lupus erythematosus. *See* Systemic lupus erythematosus (SLE)
Lupus erythematosus cell preparation tests, 4:2188
Lurk-in-the-ditch. *See* Pennyroyal
Lus na s'iochana. *See* Lysimachia
Lushbaugh, C.C., 1:60
Lust, Benedict, 3:1578, 1580; 4:2276
Luteal cysts, 3:1673, 1674, 1677
Luteal phase of menstruation, 1:71; 3:1479
Lutein, 3:**1374–1375**
as antioxidant, 1:111
beta carotene and, 1:230
cataracts, 1:418
food sources, 1:403*t*
glaucoma, 2:933
for macular degeneration, 3:1402
overview, 1:405
retinopathy, 3:1919
Luteinizing hormone (LH), amenorrhea and, 1:71, 72
Luvox (fluvoxamine), for obsessive-compulsive disorder, 3:1629
LY 156735, jet lag and, 2:1239
Lycii fructus, for night blindness, 3:1603
Lycium fruit, 3:**1376–1377**
Lycopene, 3:**1377–1380,** *1378*
as antioxidant, 1:111
food sources, 1:403*t*
gum diseases, 2:978
overview, 1:405
prostate cancer, 3:1827
retinopathy, 3:1919
supplements, 1:406
Lycopodium, 1:549–551, *550*; 3:*1380*, **1380–1382,** *1381*
Alzheimer's disease, 1:67, 550
ear infections, 2:733
in homeopathy, 2:1084*t*
indigestion, 2:1169
menopause, 3:1476
sleep disorders, 4:2085
stomachaches, 4:2144
tonsillitis, 4:2245
Lycopus, 3:**1382–1384**
See also Bugle weed
Lycria, for fibromyalgia, 2:839
Lydia E. Pinkham's Vegetable Compound, 1:269
Lyme disease, 3:*1384*, **1384–1388**
homeopathy for, 2:1094
ledum for, 3:1324
manganese for, 3:1422
LYMErix, 3:1386–1387
Lymph nodes
breast cancer metastasis, 1:322, 325, 326–327
detoxification, 2:679
Lymphadenophic Kaposi's sarcoma, 2:1258
Lymphangiograms, 2:1074; 3:1420
Lymphatic drainage, 3:**1388–1389,** *1389*, 1442
detoxification and, 2:679
edema, 2:746
osteopathy and, 3:1660
pregnancy, 3:1802
Lymphatic system
cellulite and, 1:438
fritillaria for, 2:869

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Lymphatic system *(continued)*
geriatric massage for, 2:917
lysimachia for, 3:1390
Russian massage for, 3:1959
Swedish massage for, 4:2172
tangerine peel for, 4:2196
Thai massage for, 4:2218
therapeutic touch and, 4:2222
Lymphedema
lymphatic drainage for, 3:1388–1389
massage therapy for, 3:1441
overview, 2:745, 746
red clover for, 3:1891
Lymphocytes, 3:1331, 1332
Lymphokines, in colostrum, 1:583
Lymphoma
AIDS-related, 1:35
celiac disease and, 2:944
defined, 1:385
immuno-augmentation therapy and, 2:1160
malignant, 3:1418–1421, *1419*
See also Hodgkin's disease
Lyre-leafed sage. *See* Sage
Lysimachia, 3:**1389–1391,** *1390*
Lysine, 3:**1391–1393**
cold sores, 1:563
genital herpes, 2:911
lead poisoning, 3:1318
overview, 1:74
shingles, 4:2053
Lythrum species. *See* Lysimachia
Lytta vesicatoria. See Cantharis

M

M. D. Anderson Cancer Center, 2:1042, 1114, 1115
Ma chi xian, 1:77
Ma huang. *See* Ephedra
Maastricht University, 2:890
Mace. *See* Nutmeg
Machado, Margaret, 3:1358
Machado, Nerita, 3:1358
MacLean, Catherine, 2:847
Macro minerals, 1:462; 3:1613
Macrobiotic diet, 3:**1395–1399,** *1396*
biological cancer treatment and, 1:396
endometriosis, 2:759
inflammatory bowel disease, 2:1185
Macular degeneration, 3:*1399,* **1399–1403,** *1400*
beta carotene for, 1:228
bilberry for, 1:239
linoleic acid and, 3:1348
lutein for, 3:1374
lycopene for, 3:1378
lysimachia for, 3:1391
night blindness and, 3:1603, 1604
pine bark extract for, 3:1756
quercetin for, 3:1866
zinc for, 4:2421
Macular rashes, 3:1880
See also Rashes
Maculata. See Wintergreen
Mad-dog weed. *See* Alisma; Skullcap
Mad weed. *See* Skullcap
Madopar (benzaseride), for Parkinson's disease, 3:1709
Magic. *See* Nutmeg
Magnesia phosphorica
in cell salt therapy, 1:433
irritable bowel syndrome, 2:1220
menopause, 3:1476
menstruation disorders, 3:1483
overview, 3:1405
pelvic inflammatory disease, 3:1724
sciatica, 4:2002
stomachaches, 4:2144
Magnesium, 3:**1403–1407,** 1404*t*
ADHD, 1:176
asthma, 1:156
autism, 1:190
blood clots, 1:292
cerebral palsy, 1:443
chickenpox, 1:478
childhood nutrition and, 1:490
chronic fatigue syndrome, 1:532
constipation, 1:598, 600
dementia, 2:665
diabetes, 2:688
diarrhea, 2:697
dizziness, 2:713
from dolomite, 2:716
dysmenorrhea, 2:729
endometriosis, 2:759
headaches, 2:1004
heart attacks, 2:1012
heart disease, 2:1018
heavy metal poisoning, 2:1027
hyperopia, 2:1127
inflammatory bowel disease, 2:1185
kidney infections, 2:1274
kidney stones, 2:1278
Lyme disease, 3:1386
as major mineral, 1:462
Ménière's disease, 3:1467
menopause and, 3:1476
menstruation disorders, 3:1482, 1483
migraine, 3:1500, 1501
mononucleosis, 3:1514
muscle cramps, 3:1550
pain, 3:1685
panic disorders, 3:1698
Parkinson's disease, 3:1708
peripheral neuropathy, 3:1734
premenstrual dysphoric disorder, 3:1483
premenstrual syndrome, 3:1805
pyridoxine with, 3:1857
radiation injuries, 3:1876
Raynaud's syndrome, 3:1887
restless leg syndrome, 3:1911
sleep disorders, 4:2085
systemic lupus erythematosus, 4:2188
temporomandibular joint syndrome, 4:2207
tinnitus, 4:2242
UTIs, 1:285
in wheat germ, 4:2368
wheezing, 4:2372
Magnesium deficiency, 2:688; 3:1404, 1405
Magnesium sulfate
for cerebral palsy prevention, 1:446
in hydrotherapy, 2:1121, 1122
ingrown nails, 2:1191
overview, 3:1405, 1406
sensory deprivation and, 4:2022–2023
vaginitis, 4:2309
Magnesium toxicity, 3:1404, 1407
De Magnete (Gilbert), 3:1408
Magnetic resonance imaging (MRI)
epilepsy, 2:777
herniated disks, 2:1056
hyperthyroidism, 2:1138
ischemia, 2:1224–1225
jaundice, 2:1234
lung cancer, 3:1369
memory loss, 3:1462
multiple sclerosis diagnosis and, 3:1542
osteoarthritis, 3:1655
tennis elbow, 4:2212
Magnetic therapy, 3:**1407–1409,** 1407*t*
chronic fatigue syndrome, 1:533
knee pain, 2:1283
neck pain, 3:1586
osteoarthritis, 3:1656
tuberculosis, 4:2277
Magnetite, for sleep disorders, 4:2085
Magnolia, 3:**1409–1411,** *1410, 1411,* 1929
Mahabharata (Hindu text), 4:2324
Maharishi Ayur-Ved products, 1:195; 3:1691
Maharishi Ayurveda. *See* Ayurvedic medicine
Maharishi University of Management, 3:1844
Mahesh Yogi, Maharishi, 1:192, 194; 3:1450, 1451, *1451*
Mai men dong. *See* Ophiopogon
Maidenhair tree. *See* Ginkgo biloba
Mainstream medicine. *See* Allopathic medicine
Maintenance insomnia, 2:1194
Maintenance sports massage, 4:2125, 2126
See also Sports massage

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Maintenance stage, Atkins diet, 1:171
Maitake, 3:*1412,* **1412–1414**
AIDS, 1:36
in herbal cold remedies, 2:1046, 1047
infections, 2:1176
prostate cancer, 3:1827
Maitake D-fraction, 3:1412, 1413
Maitake Products, 3:1413
Maize, for urinary incontinence, 4:2293
Maize jagnog. *See* Cornsilk
Major burns, defined, 1:361
See also Burns
Major depressive disorder, 2:668, 669
See also Depression
Major minerals, 1:462; 3:1613
Malaleuca. See Tea tree oil
Malaria, 3:**1414–1418**
arsenicum album for, 1:144
artemisinin for, 3:1416, 1534; 4:2395–2396
cornus for, 1:613
eucalyptus trees and, 2:793
feverfew for, 2:833
fo ti for, 2:854, 855
gymnema for, 2:980
Hahnemann, Samuel and, 2:1085, 1089
homeopathy for, 2:1094
jaundice and, 2:1233, 1237
mugwort for, 3:1534
neem for, 3:1588
pau d'arco for, 3:1719, 1720
sickle cell anemia and, 4:2062
white willow for, 4:2376
Malathion, for lice infestations, 3:1340
Malay tea. *See* Psoralea seeds
Male fern, for worms, 4:2393
Male infertility
causes, 2:1179
selenium for, 4:2009
treatment, 2:1181–1182
vitamin B12 for, 4:2336, 2338
vitamin E for, 4:2351
zinc for, 4:2421
Male pattern baldness, 2:983, 984
Malee. *See* Eucalyptus
Malignant hyperthermia, 2:831
Malignant lymphoma, 3:**1418–1421,** *1419*
Malignant melanoma. *See* Skin cancer
Malignant tumors, defined, 1:385
See also Tumors
Mallards. *See* Marsh mallow
Malleus bone, 2:731
Malnutrition
alcoholism and, 1:42, 44
celiac disease and, 1:429; 2:942
cerebral palsy and, 1:444
cervical dysplasia and, 1:449–450
childhood nutrition and, 1:492
chills from, 1:495
Crohn's disease and, 1:632, 633
from diarrhea, 2:696
edema from, 2:745
elimination diet and, 2:752
gluten-free diet and, 2:942, 944
macrobiotic diet and, 3:1398
memory loss and, 3:1461
Ornish diet and, 3:1647
rashes and, 3:1880
veganism and, 4:2321
vegetarianism and, 4:2329–2330
Maltases, 2:768
Mammary dysplasia. *See* Fibrocystic breast disease
Mammography
breast cancer, 1:323–324, 327
fibrocystic breast disease and, 2:837
Mana (energy), 2:1118
Managed Healthcare Executive (journal), 3:1843
Manchurian mushroom tea. *See* Kombucha
Mandarin oil, 4:2196
Mandarin orange peel. *See* Tangerine peel
Mandibular advancement splints, for sleep apnea, 4:2081
Mandibular orthopedic repositioning appliances (MORAs), 2:1078
Mang cut. *See* Mangosteen
Manganese, 3:*1422,* **1422–1424,** 1423*t*
blood clots, 1:292
chondroitin with, 1:524
chronic fatigue syndrome, 1:532
juvenile rheumatoid arthritis, 2:1253
menopause and, 3:1476
as trace mineral, 1:462
Manganum aceticum, for anemia, 2:1216
Manggis. *See* Mangosteen
Mangis. *See* Mangosteen
Mangosteen, 3:**1424–1427**
Mangouste/mangostao. *See* Mangosteen
Manic-depressive disorder. *See* Bipolar disorder
Manic episodes, 1:256–257
Manihot esculenta, for ovarian cancer, 3:1671
Manipulation. *See* Chiropractic; Osteopathic manipulation; Spinal manipulative therapy
Manipura, 1:453
Mann, Felix, 1:125
Manner, Harold, 3:1491
Manner metabolic diet therapy, 3:1492
Manners, Sir Peter Guy, 1:649; 4:2107
Mannitol, for ciguatera poisoning, 2:862
Mantoux tests, for tuberculosis, 4:2276
Manual lymph drainage. *See* Lymphatic drainage
Manufacturing practices. *See* Good Manufacturing Practices
Manuka honey, 3:**1427–1430**
Manzanilla. *See* Chamomile
Mao Ye Li Lu, 3:1912–1913
MAOIs. *See* Monoamine oxidase inhibitors
Maori people, manuka honey use, 3:1427
MAP30 protein, 1:264
MAPN (Microscopically assisted percutaneous nucleotomy), for sciatica, 4:2002
Maranta arundinacea. See Arrowroot
Marezine, for motion sickness, 3:1521
Marian thistle. *See* Milk thistle
Marie-Strümpell disease. *See* Ankylosing spondylitis
Marigold
blisters, 1:290
bunions, 1:357
cervical dysplasia, 3:1580
as insect repellent, 2:1230
itching, 2:1229
See also Calendula
Marijuana, 3:*1430,* **1430–1433**
abuse of, 4:2158, 2160
AIDS, 1:36–37
chlamydia, 1:514
glaucoma, 2:934
Marijuana Tax Act of 1937, 3:1431
Marinol (dronabinol), for glaucoma, 2:934
Maritime pine. *See* Pine bark extract
Marjoram
in hydrotherapy, 2:1121
insomnia, 2:1196
shingles, 4:2053
sleep disorders, 4:2085
snoring, 4:2098
stomachaches, 4:2144
stress, 4:2151
Marker, Russell, 3:1495
Marrubium vulgare. See Horehound
Marsh mallow, 3:**1433–1435,** *1434*
bedsores, 1:211
colorectal cancer, 1:580
cough, 1:619
Crohn's disease, 1:633
diverticulitis, 2:710
fractures, 2:864
gastritis, 2:902
heartburn, 2:705, 1023
interstitial cystitis, 2:1202
irritable bowel syndrome, 2:1220

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Marsh mallow *(continued)*
itching, 2:1229
laryngitis, 3:1308, 1309
osteoporosis, 3:1665
peptic ulcers, 4:2286
stomachaches, 4:2143
teething, 4:2205
UTIs, 1:285
wheezing, 4:2372
Marsh penny. *See* Gotu kola
Marsh tea. *See* Ledum
Martial arts, 3:**1435–1439**
as exercise, 2:804–805
for multiple sclerosis, 3:1543
See also specific types
Marvel. *See* Horehound
Mary bud. *See* Calendula
Mary thistle. *See* Milk thistle
Masquelier, Jacques, 2:963; 3:1755–1756
Massachussetts College of Pharmacy and Health Sciences, 2:845
Massachussetts Institute of Technology (MIT), 1:195
choline, 1:522
Massage oils, 2:1172; 4:2173
Massage therapists
acupressure, 1:13, 14
facial massage, 2:811
Russian massage, 3:1959, 1960
stone massage, 4:2145
Massage therapy, 3:*1439,* **1439–1443**
abhyanga, 4:2030
acupressure and, 1:13, 14
ankylosing spondylitis, 1:97
anthroposophical medicine, 1:103
anxiety, 1:115
aromatherapy and, 1:140, 141
asthma, 1:157
Aston-Patterning and, 1:161
atherosclerosis, 1:167
blood clots, 1:292–293
bronchitis, 1:340
bruxism, 1:343–344
childbirth, 1:484
Chinese, 1:498–501
cirrhosis, 1:547
colic, 1:568
detoxification and, 2:679
dizziness, 2:714
dysmenorrhea, 2:730
earaches, 2:737
eczema, 2:743
essential oils and, 2:789
facial, 2:809–812, *810*
fatigue, 2:816
fibrocystic breast disease, 2:837
fibromyalgia, 2:839
genital herpes, 2:911
geriatric, 2:917–918
gum diseases, 2:979
headaches, 2:1002*t,* 1004
heart attacks, 2:1012
heart disease, 2:1018
heel spurs, 2:1029
herniated disk, 2:1058
as holistic medicine, 2:1081
hot flashes, 2:1112
hypercortisolemia, 2:1125
hyperopia, 2:1127
indigestion, 2:1167*t,* 1170
infant, 2:*1171,* 1171–1173
ingrown nails, 2:1191
insomnia, 2:1195
juvenile rheumatoid arthritis, 2:1253
Kaposi's sarcoma, 2:1259
knee pain, 2:1283
with lavender, 3:1311
lomilomi, 3:1358–1359
low back pain, 3:1365, 1366
lymphatic drainage and, 3:1388–1389, *1389*
Ménière's disease, 3:1466, 1467
meningitis, 3:1472
menopause, 3:1476
menstruation disorders, 3:1483
multiple chemical sensitivity, 3:1540
multiple sclerosis, 3:1543
muscle cramps, 3:1548–1549
nausea, 3:1583
neuralgia, 3:1597
obsessive-compulsive disorder, 3:1629
osteoarthritis, 3:1656
ovarian cancer, 3:1670
ovarian cysts, 3:1676
pain, 3:1686
in panchakarma, 3:1689
panic disorders, 3:1698
Parkinson's disease, 3:1708
peripheral neuropathy, 3:1734
phlebitis, 3:1740
phobias, 3:1743
pinched nerves, 3:1753
post-traumatic stress disorder, 3:1785
pregnancy, 3:1800, 1801–1803, *1802*
vs. reflexology, 3:1898
rheumatic fever, 3:1922
rheumatoid arthritis, 3:1926
rosacea, 3:1945
Russian, 3:1959–1960
sciatica, 4:2002
sexual dysfunction, 4:2033
shin splints, 4:2055
sick building syndrome, 4:2059
sickle cell anemia, 4:2064
sleep disorders, 4:2085
sprains and strains, 4:2128
stone, 4:2145–2146
stress, 4:2151, 2152
strokes, 4:2156
systemic lupus erythematosus, 4:2188
temporomandibular joint syndrome, 4:2207, 2208
tendinitis, 4:2210
tennis elbow, 4:2213
Thai, 4:*2217,* 2217–2220, *2218*
traditional Chinese medicine and, 4:2257
uterine cancer, 4:2300
varicose veins, 4:2317
See also Shiatsu; Swedish massage
Mast cells, 1:55–56; 2:1201
Mastalgia. *See* Fibrocystic breast disease
Mastectomy, 1:325
Masterwort. *See* Angelica
Mastitis
gardenia for, 2:894
scallion for, 4:1984
silica for, 4:2067
Mastopathy. *See* Fibrocystic breast disease
Mata. *See* Eupatorium
De Materia Medica (Dioscorides)
aromatherapy, 1:137
botanical medicine, 1:316
colchicum, 1:560
herbal medicine, 2:1048–1049
rhodiola rosea, 3:1930
Materia Medica Pura (Hahnemann), 2:1085
Mathematic disorders, 3:1321, 1322
Matricaria recutita. See Chamomile
Matrimony vine, for night blindness, 3:1603
Matthiessen, Peter, 3:1862, 1864
Maudlinwort. *See* Ox-eye daisy
Mauls. *See* Marsh mallow
Maury, Marguerite, 1:138; 2:788
May rose. *See* Cramp bark
Maybush/mayflower. *See* Hawthorn
Mayo Clinic
DHEA, 2:683
fibromyalgia, 2:839
5-HTP, 2:844
herbal cold remedies, 2:1046
vitamin E, 4:2351
Mayo Clinic Book of Alternative Medicine, 1:149
Maypop. *See* Passionflower
Mazes *vs.* labyrinths, 3:1295
Mazuma wasabi. *See* Wasabi
MCBTMB (National Certification Board for Therapeutic Massage and Bodywork), 3:1442
McClure, Vimala Schneider, 2:1172
McCune-Albright syndrome, 3:1675, 1677
McDougall, John, 3:1443
McDougall diet, 3:**1443–1444**
McGill Pain Questionnaire, 4:2207
MCS. *See* Multiple chemical sensitivity

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

MCTs (medium-chain triglycerides), 3:1456–1468
mDangs-sgur (Tibetan medicine), 4:2240
mDog-sel (Tibetan medicine), 4:2240
Me gui ha, 3:1948
Meadow anemone. *See* Pulsatilla
Meadow saffron. *See* Colchicum
Meadow sage. *See* Sage
Meadow trefoil. *See* Red clover
Meadowsweet
diarrhea, 2:698
endometriosis, 2:760
gastroenteritis, 2:907
irritable bowel syndrome, 2:1220
morning sickness, 3:1517
peptic ulcers, 4:2286
stomachaches, 4:2143
Mealberry. *See* Uva ursi
Measles, 3:*1445*, **1445–1448**
arsenicum album for, 1:144
cicada for, 1:541
eyebright for, 2:807
grains-of-paradise for, 2:959
Hodgkin's disease and, 2:1075
kudzu for, 2:1291
pulsatilla for, 3:1852
raspberry for, 3:1884
rhus toxicodendron for, 3:1936
safflower for, 4:1965
shiitake mushroom for, 4:2049
therapeutic touch for, 4:2223
yarrow for, 4:2402
Measles-mumps-rubella (MMR) vaccine
autism and, 1:191; 3:1447, 1547
rubella and, 3:1955, 1957
Meat
anti-inflammatory diet, 1:107
omega-3-fortified pork, 2:847
in Paleolithic diet, 3:1687, 1688
Meat tenderizer compresses
bites and stings, 1:261
itching, 2:1229
Mechanical ventilation
Lou Gehrig's disease, 3:1362
pneumonia and, 3:1771
sleep apnea, 4:2081
Meclizine, 3:1521, 1583
Medial epicondylitis. *See* Tennis elbow
Medial tibial stress syndrome. *See* Shin splints
Medicago sativa. *See* Alfalfa
Medical acupuncture. *See* Acupuncture
Medical Journal of Australia, 4:2198
Medical schools
homeopathy, 2:1092, 1096
naturopathic medicine, 3:1578, 1580, 1581
osteopathy, 3:1658, 1661–1662
traditional Chinese medicine and, 4:2255
Medical tests. *See* Diagnostic imaging; Laboratory tests
Medicine bundles (Native American medicine), 3:1566
Medihoney, 3:1429
Meditation, 3:*1448*, **1448–1452**
anxiety, 1:115
Cayce meditation room, 1:*423*
chronic fatigue syndrome, 1:533
colitis, 1:571
dizziness, 2:714
endometriosis, 2:760
epilepsy, 2:777
exercise and, 2:803, 804
fatigue, 2:816
genital herpes, 2:911
glaucoma, 2:934
headaches, 2:1004
heart attacks, 2:1012
hot flashes, 2:1112
hypercortisolemia, 2:1125
hyperthyroidism, 2:1139
indigestion, 2:1170
insomnia, 2:1195
irritable bowel syndrome, 2:1220
ischemia, 2:1225
Kaposi's sarcoma, 2:1259
learning disorders, 3:1322
leukemia, 3:1334
low back pain, 3:1366
lung cancer, 3:1372
lymphomas, 3:1420
menopause, 3:1476
migraine, 3:1500
as mind/body medicine, 3:1506–1507
mononucleosis, 3:1515
muscle cramps, 3:1550
nausea, 3:1583
neck pain, 3:1587
ovarian cancer, 3:1670
ovarian cysts, 3:1676
pain, 3:1686
panchakarma and, 3:1690
pancreatitis, 3:1695
panic disorders, 3:1698
Parkinson's disease, 3:1708
past life therapy and, 3:1717
peripheral neuropathy, 3:1734
phobias, 3:1743
pityriasis rosea, 3:1760
pneumonia, 3:1772
postpartum depression, 3:1781
pranic healing and, 3:1792
pregnancy, 3:1800
premenstrual syndrome and, 3:1807
psychophysiology and, 3:1842
psychosomatic medicine and, 3:1844
qigong and, 3:1861
quan yin and, 3:1864
relaxation response and, 1:331
rheumatoid arthritis, 3:1926
sexual dysfunction, 4:2033
sleep disorders, 4:2085
sties, 4:2141
stress, 4:2151
strokes, 4:2156
substance abuse, 4:2161
systemic lupus erythematosus, 4:2188
weight loss, 3:1624
Meditative prayer, 3:1794
Mediterranean diet, 2:1200; 3:**1452–1456**, 1453*t*
Mediterranean Food Pyramid, 3:1454
Medium-chain triglycerides (MCTs), 3:**1456–1458**
Medorrhinum, 3:1882; 4:2184
MedWatch, 2:1261, 1262
Mefloquin, for malaria, 3:1417
Megaloblastic anemia
defined, 1:83
folic acid deficiency, 2:856, 857
vitamin B12, 4:2336, 2337, 2339
Megestrol acetate, for hot flashes, 2:1111
Melaleuca alternifolia. *See* Tea tree oil
Melanin, copper and, 1:603
Melanomas, 1:385; 4:2072
See also Skin cancer
Melatonin, 3:**1459–1460**
aging, 1:30
Alzheimer's disease, 1:67
5-HTP and, 2:844
insomnia, 2:1196, 1197; 3:1459
jet lag, 2:1238–1239; 3:1459
leukemia, 3:1334
lung cancer, 3:1371
migraine, 3:1500
seasonal affective disorder and, 4:2006, 2008
sleep disorders, 4:2085
Melegueta pepper. *See* Grains-of-paradise fruit
Melilotus officinalis. *See* Sweet clover
Melissa officinalis. *See* Lemon balm
Melittin, 1:120
Melon, bitter. *See* Bitter melon
Memorial Sloan-Kettering Cancer Center
essiac tea, 2:790
Hoxsey formula, 2:1115
lycium fruit, 3:1376
maitake research, 3:1413
mangosteen, 3:1426
phytolacca, 3:1748
sound therapy, 4:2109
Memory loss, 3:**1461–1464**
Alzheimer's disease and, 1:66; 3:1462, 1464
choline for, 1:522
cuscuta for, 1:645
dementia and, 2:664
gotu kola for, 2:953

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Memory loss *(continued)*
lecithin for, 3:1323
periwinkle for, 3:1736–1737
riboflavin for, 3:1938
vitamin E for, 4:2350
zinc for, 4:2421
Men
anorexia nervosa, 1:100
bulimia nervosa, 1:352, 353
chlamydia, 1:512, 513
genital herpes, 2:911
heart attacks, 2:1011
heart disease, 2:1016
ischemia, 2:1223
osteoporosis, 3:1663
sexual dysfunction, 4:2031
t'ai chi, 4:2194
UTIs, 1:283, 284
Menarche, 1:70; 3:1478, 1668
Ménière, Prosper, 3:1465
Ménière's disease, 3:**1465–1468**
hearing loss and, 2:1008
motion sickness and, 3:1520
vertigo from, 2:712–713
Meninges, tuberculosis and, 4:2275
Meningitis, 3:*1468*, **1468–1473**, *1469*, 1545
Meningococcal meningitis, 3:1470
Meningovascular neurosyphilis, 4:2182
Meniscocytosis. *See* Sickle cell anemia
Meniscus damage, knee pain and, 2:1282
Menninger, Charles, 1:146
Menninger, Karl, 1:146
Menninger, William, 1:146
Menninger Clinic, 1:146, 243
Menopause, 3:**1473–1478**, 1473*t*
anemarrhena for, 1:80
anise for, 1:94
apitherapy for, 4:2331
BHRT for, 1:248–251
black cohosh for, 1:269, 270
black currant seed oil for, 1:274
borage for, 1:310
boron and, 1:313
calcium for, 1:379
chasteberry for, 1:460
cotton root bark for, 1:616
cramp bark for, 1:622
damiana for, 2:653
devil's claw for, 2:681
dong quai for, 2:718, 719
evening primrose oil for, 2:799
flaxseed for, 2:846
fo ti for, 2:854
gardenia for, 2:893
hesperidin for, 2:1059
homeopathy for, 2:1094
lachesis for, 3:1299
licorice for, 3:1342
memory loss and, 3:1462
natural hormone replacement therapy for, 3:1570, 1573
naturopathic medicine for, 3:1580–1581
notoginseng for, 3:1608
osteoporosis and, 3:1663, 1664
ovarian cancer and, 3:1668
pine bark extract for, 3:1756
probiotics for, 3:1820
sage for, 4:1970
saliva sampling and, 4:1973
selenium for, 4:2009
sepia for, 4:2028
sesame oil for, 4:2029
shiatsu for, 4:2046
soy protein for, 4:2115
St. John's wort for, 4:2131
suma for, 4:2165
urinary incontinence and, 4:2291
uva ursi for, 4:2305
valerian for, 4:2312
yoga for, 2:993; 4:2409
See also Hot flashes
Menorrhagia
hyperthermia for, 2:1137
lycopus for, 3:1383
lysimachia for, 3:1390
overview, 3:1480
periwinkle for, 3:1736
raspberry for, 3:1883
rosemary for, 3:1951
sepia for, 4:2028
shepherd's purse for, 4:2044
uterine fibroids and, 4:2301, 2302
uva ursi for, 4:2305
witch hazel for, 4:2389
Mensendieck, Bess, 3:1525
Mensendieck system, 3:1525
Menstrual cramps. *See* Dysmenorrhea
Menstruation, 3:**1478–1484**
acne and, 1:7
black currant seed oil for, 1:274, 275
edema from, 2:745
fibrocystic breast disease and, 2:836
saliva sampling and, 4:1973
Menstruation disorders, 3:1479–1481
blessed thistle for, 1:289
blue cohosh, 1:299
blue cohosh for, 1:298
borage for, 1:310
chasteberry for, 1:460
Chinese foxglove root for, 1:497
Chinese thoroughwax for, 1:505
cinnamon for, 1:544
cornus for, 1:613
cotton root bark for, 1:616
cramp bark for, 1:622
craniosacral therapy for, 1:627
cyperus for, 1:651
damiana for, 2:653
devil's claw for, 2:681
dong quai for, 1:88; 2:718, 719
ferrum phosphoricum for, 2:828
feverfew for, 1:536
homeopathy for, 2:1094
horsetail for, 2:1107
ignatia for, 2:1157
juniper for, 2:1249
kava kava for, 2:1260, 1261
kelp for, 2:1269
lachesis for, 3:1299, 1300
manganese for, 3:1423
mangosteen for, 3:1425, 1426
Mexican yam for, 3:1495
motherwort for, 3:1518
mugwort for, 3:1533, 1534
natrum muriaticum for, 3:1568–1569
natural hormone replacement therapy and, 3:1572–1573
nux vomica for, 3:1616, 1617
peppermint for, 3:1728
prince's pine for, 3:1814
pulsatilla for, 3:1852, 1854
raspberry for, 3:1883
rhubarb for, 3:1934
safflower for, 4:1965
sage for, 4:1970
sepia for, 4:2028
shepherd's purse for, 4:2044
shiatsu for, 4:2046
squawvine for, 4:2129
St. John's wort for, 4:2131
suma for, 4:2165
therapeutic touch for, 4:2224
turmeric for, 1:642; 4:2280
uva ursi for, 4:2305
white peony root for, 4:2374
witch hazel for, 4:2390
yoga for, 4:2409
See also specific disorders
Mental and emotional symptoms (homeopathy), 2:1090, 1094
Mental disorders
vs. ADHD, 1:176
apitherapy for, 1:119
art therapy for, 1:145–147
childhood nutrition and, 1:487, 489
chronic fatigue syndrome and, 1:531
craniosacral therapy for, 1:628
dance therapy for, 2:*655*, 655–658
essential fatty acids for, 2:785–786
fasting and, 2:814
Freudian view, 3:1847
frostbite and, 2:871
lachesis for, 3:1299, 1300
magnesium for, 3:1405
massage therapy for, 3:1442
mistletoe for, 3:1510
music therapy for, 3:1552
nux vomica for, 3:1617–1618
omega-3 fatty acids for, 3:1632
orthomolecular medicine for, 3:1651
past life therapy for, 3:1717

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

post-traumatic stress disorder and, 3:1784
probiotics for, 3:1820
qigong for, 3:1859
schisandra for, 4:1989, 1990
Tibetan medicine for, 4:2239
traditional African medicine for, 4:2253
Trager psychophysical integration for, 4:2259
See also specific disorders
Mental function. *See* Brain function
Mental imagery. *See* Guided imagery
Mental rehearsal, guided imagery for, 2:973
Mentastics, 4:2260
Mentha arvensis var. *piperescens*. *See* Japanese mint
Mentha crispa. *See* Spearmint
Mentha piperita. *See* Peppermint
Mentha pulegium. *See* Pennyroyal
Mentha spicata. *See* Spearmint
Mentha viridis. *See* Spearmint
Menthol
in peppermint, 3:1728, 1730
for prickly heat, 3:1809
Meperidine, for headaches, 2:1005; 3:1500
Meprobamate, for anxiety, 1:116
Merck & Co., 1:451; 3:1893
Merck Manual of Diagnosis and Therapy, 2:1204
Mercuric salts, 3:1487
Mercurius iodatus, for sinus infections, 4:2069
Mercurius solubilis hahnemanni. *See Mercurius vivus*
Mercurius vivus, 3:**1484–1486**
boils, 1:303
earaches, 2:737
gum diseases, 2:978
in homeopathy, 2:1084*t*
pelvic inflammatory disease, 3:1724
sore throat, 4:2106
strep throat, 4:2148
syphilis, 4:2184
tonsillitis, 4:2245
Mercury poisoning, 3:**1486–1490**
causes, 2:1026; 3:1485
contaminated fish, 1:473; 2:786; 3:1486–1488
dental amalgams, 2:1027, 1075, 1078; 3:1488
treatment, 2:1027
Mercury Poisoning (State of Michigan), 3:1486
Meridian Institute, 1:424–425
Meridians
acupressure, 1:13–14, 15
acupuncture, 1:18, 19
applied kinesiology, 1:125
Chinese food cures, 1:502
Chinese massage, 1:499
qigong, 3:1860
traditional Chinese medicine, 4:2256
See also Acupuncture points
Merry parsley. *See* Parsley
Mesetor. *See* Mangosteen
Meshasringi. *See* Gymnema
Meskwaki people, cramp bark and, 1:622
Mesmer, Franz, 2:*1140*, 1140–1141; 3:1843
Mesmerism, 2:1140–1141; 3:1843
Mesoglycan, 3:**1490–1491**
Mesothelioma, 3:1369
Messenger, Eusebia, 3:1896
Metabolic cancer treatment, 1:394–398
See also Cancer treatment
Metabolic diseases
cell salt therapy for, 1:433
muscle cramps and, 3:1549
vitamin D and, 4:2347
See also specific diseases
Metabolic-limb system (anthroposophical medicine), 1:103
Metabolic syndrome, 2:1198–1199; 3:1454
Metabolic Technologies, Inc. (MTI), 1:225
Metabolic therapies, 3:**1491–1492**
Metabolism
alcohol, 2:987
estrogen, 1:249
medium-chain triglycerides, 3:1456, 1457
senior nutrition and, 4:2013
Shangri-la diet and, 4:2039
Metabolism (journal), 4:2314
Metagenomics, 2:722
Metchniko, Llya Llyich, 2:722
Metformin
diabetes, 2:689
ovarian cysts, 3:1677
polycystic ovarian syndrome, 3:1778
weight loss, 3:1626
Methamphetamine addiction, lobelia for, 3:1354
Methicillin-resistant *Staphylococcus aureus* (MRSA)
manuka honey for, 3:1428
overview, 2:1175
skin abscess, 1:2
swimmer's ear and, 4:2176
tea tree oil for, 4:2197
Methimazole, for hyperthyroidism, 2:1139
Methionine, 3:**1492–1495**
cirrhosis, 1:547
endometriosis, 2:759
heavy metal poisoning, 2:1027
juvenile rheumatoid arthritis, 2:1253
overview, 1:74
radiation injuries, 3:1876
Methotrexate, 2:1253; 3:1837
Methyl sulfone. *See* MSM
Methylcobalamin, for memory loss, 3:1463
Methylglyoxal, in manuka honey, 3:1428
Methylmercury compounds, 3:1486, 1488
Methylprednisone, for multiple sclerosis, 2:778
Metoclopramide
headaches, 2:1005
hiatal hernia, 2:1062
hiccups, 2:1065
indigestion, 2:1170
migraine, 3:1500
MetPath, 2:1161
Metronidazole
Helicobacter pylori infections, 4:2144, 2286
peptic ulcers, 4:2286
trichomoniasis, 4:2268
vaginitis, 4:2310
Metrorrhagia, 3:1481
Mevacor (lovastatin), 3:1893
Mexican damiana. *See* Damiana
Mexican grass, for worms, 4:2393
Mexican National Institute of Pediatrics, 4:1968
Mexican saffron. *See* Safflower flower
Mexican yam, 3:**1495–1497**, *1496*
diverticulitis, 2:710
natural hormone replacement therapy and, 3:1571, 1574
premenstrual syndrome, 3:1805
systemic lupus erythematosus, 4:2188
Mexico, curanderismo in, 1:640
Meyer, Theodore, 3:1719
Meyerowitz, Steve, 1:396
Meyers, Philippus, 2:1212
Meyers, Stephen P., 2:722
Miacalein (calcitonin), for osteoporosis, 3:1666
Miasms theory (homeopathy)
calcarea carbonica and, 1:376
defined, 2:1093, 1094
syphilis and, 4:2184
Michaux, André, 4:2220
Michelangelo, 3:1961
Michigan State University, 1:642
Microangiopathic hemolysis, 2:1234
Microbios (journal), 3:1328
Microglossa pyrifolia, for malaria, 3:1416

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Microhemagglutination-*T. pallidum* tests, for syphilis, 4:2183
Microscope studies, for syphilis, 4:2183
Microscopically assisted percutaneous nucleotomy (MAPN), for sciatica, 4:2002
Microvascular angina, 1:90
Microwave diathermy, 2:700; 3:1832
See also Diathermy
Mid-summer daisy. *See* Feverfew
Middle ear anatomy, 2:731
Middle ear infections. *See* Ear infections
Midwifery Today and Childbirth Education, 4:1978
Midwives, 1:485; 4:2253
Migraine headaches, 3:**1497–1502,** *1498*
allopathic treatment, 2:1005; 3:1500
apitherapy for, 4:2331
belladonna for, 1:222
biofeedback for, 3:1507
causes, 2:1003
dong quai for, 2:718
facial massage for, 2:809
feverfew for, 2:833
5-HTP for, 2:844
gastrodia for, 2:904, 905
gelsemium for, 2:909
Gerson therapy for, 2:919
homeopathy for, 2:1086, 1090, 1094
Jamaican dogwood for, 2:1231
kava kava for, 2:1260
kola nuts for, 2:1287
kudzu for, 2:1291
marijuana for, 3:1432
meditation for, 3:1449
Ménière's disease and, 3:1465
mistletoe for, 3:1510
neural therapy for, 3:1593–1594
neurolinguistic programming for, 3:1598
osteopathy for, 3:1658
prevalence, 2:1001
riboflavin for, 3:1500, 1501, 1938; 4:2338
rosemary for, 3:1951
shiatsu for, 4:2046
silica for, 4:2067
thyme for, 4:2237
valerian for, 4:2312
yarrow for, 4:2402
yoga for, 4:2409
yucca for, 4:2418
Migraine with aura, 3:1497, 1499
Mile-a-minute vine. *See* Kudzu
Miliaria. *See* Prickly heat
Miliary tuberculosis, 4:2276, 2277
Milieu therapy. *See* Environmental therapy
Military herb. *See* Yarrow
Milk glands, 2:836
Milk of magnesia, 3:1406, 1407
Milk supply problems (breast-feeding), 1:328, 329
Milk thistle, 3:*1502,* **1502–1504**
acne, 1:8
alcoholism, 1:44
anxiety, 1:116
breast-feeding problems, 1:329
chemical poisoning, 1:471, 472
cirrhosis, 1:547
detoxification, 2:678
endometriosis, 2:760
gallstones, 2:880
hangovers, 2:988, 989
heavy metal poisoning, 2:1027
hepatitis, 2:1039
jaundice, 2:1236
lead poisoning, 3:1319
malaria, 3:1416
menstruation disorders, 3:1482
multiple chemical sensitivity, 3:1540
panic disorders, 3:1698
phobias, 3:1743
retinopathy, 3:1919
stress, 4:2152
substance abuse, 4:2161
Milk vetch root. *See* Astralagus
Millefoil. *See* Yarrow
Miller, Ferdinand von, 2:793
Miller, Neal, 1:242
Mills, John, 1:122
Milne Institute, 1:628
Milton, John, 2:807
Milwaukee brace, for scoliosis, 4:2005
Milwaukee Magazine, 2:1078
Mimulus flower essence, 1:197; 2:850*t,* 851
The Mind/Body Effect (Benson), 3:1906
Mind Body Medical Institute, 1:331
Mind/body medicine, 3:**1504–1509**
art therapy and, 1:147
asthma, 1:156
Ayurvedic medicine as, 1:195
Benson, Herbert and, 3:1904–1905
biofeedback and, 1:242
Christian Science healing and, 1:527
detoxification and, 2:679
holistic medicine and, 2:1082
ischemia, 2:1225
ovarian cancer, 3:1670
ovarian cysts, 3:1676
psychoneuroimmunology and, 3:1839
psychophysiology and, 3:1841, 1842
psychosomatic medicine and, 3:1843–1844
syphilis, 4:2184
uterine cancer and, 4:2300
yoga and, 4:2412
Mindfulness-based stress reduction, 1:115; 3:1450, 1451
Mindfulness meditation, 3:1449, 1450, 1507, 1698, 1743
See also Meditation
Mind's eye
dyslexia, 2:727
trepanation, 4:2264
Mineral water, bathing with, 4:2101
Minerals
for ADHD, 1:176–177
chelated, 1:461–464
defined, 3:1613
overdose, 3:1615
See also Trace minerals; *specific minerals*
Miner's candle. *See* Mullein
Miner's elbow. *See* Bursitis
Miner's lung. *See* Emphysema
Mini-Mental Status Examination (MMSE), 3:1462
Minimal doses, homeopathy and, 2:829
Minimata disease, 3:1488
Minnesota district court, radionics and, 3:1879
Minocycline, for Lou Gehrig's disease, 3:1362
Minot Bupleurum soup, for fatigue, 2:817
Minoxidil, for hair loss, 2:984
Mint
gum diseases, 2:978
laryngitis, 3:1308
prickly heat, 3:1809
See also Peppermint
Miotics, for glaucoma, 2:934
The Miracle of Life (Kellogg), 4:2325
Miralus Healthcare, 3:1685
Mirena intrauterine device, 2:730
Miscarriage
Chinese skullcap for, 4:2076
sepia for, 4:2028
squawvine for, 4:2129
uterine fibroids and, 4:2302
See also Abortifacients; Pregnancy
Mishmi bitter. *See* Coptis
Misoprostol, for peptic ulcers, 4:2286, 2287
Missile wounds, 4:2398
See also Wounds
Missouri snakeroot. *See* Echinacea
Mistletoe, 3:**1509–1512,** *1510*
bladder cancer, 1:281
cancer, 1:104
common cold, 1:591
MIT (Massachussetts Institute of Technology), 1:195
Mitchell, H. K., 2:1158
Mitchella repens. See Squawvine

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Mitral valve prolapse, magnesium for, 3:1405
Mittelschmerz, 3:1674
Mixed incontinence, 4:2291*t*
Mixed sleep apnea, 4:2079, 2083
Mixers (chiropractic), 1:509
mKhris-pa, 4:2239–2240
MMR vaccine. *See* Measles-mumps-rubella (MMR) vaccine
MMSE (Mini-Mental Status Examination), 3:1462
Mock pennyroyal. *See* Pennyroyal
Modafinil, for narcolepsy, 3:1564
Modeling, in behavioral therapy, 1:218
Moderate burns, defined, 1:361
See also Burns
A Modern Herbal (Grieve and Leyel)
bayberry, 1:209
bugle weed, 1:351
slippery elm, 4:2089
turmeric, 4:2279
Modern life, Shangri-la diet and, 4:2038
Mohs, Frederic, 2:782
Mohs procedure, 2:782, 784
Moh's surgery, 4:2074
Moist gangrene, 2:885
Moist warts. *See* Genital warts
Molan, Peter, 3:1427, 1428, 1429
Mold, sick building syndrome and, 4:*2057*, 2058
Molecular Nutrition & Food Research, 1:591
Molybdenum
leukemia, 3:1333
lung cancer, 3:1371
as trace mineral, 1:462
Momordica charantia. *See* Bitter melon
Monascus purpureus Went. *See* Red yeast rice extract
Mondeville, Henri de, 2:1116
The Moneychanger, 2:1267
Moneywort. *See* Lysimachia
Monilial infections. *See* Vulvovaginal candidiasis
Monk's pepper. *See* Chasteberry tree
Monkshood. *See* Aconite
Mono spot tests, 3:1514; 4:2105
Monoamine oxidase inhibitors (MAOIs)
bipolar disorder, 1:258
depression, 2:671
phobias, 3:1744
seasonal affective disorder, 4:2008
Monocytes, leukemia and, 3:1331, 1332
Mononucleosis, 3:**1512–1516,** 1513*t*
lomatium for, 3:1357
phytolacca for, 3:1748
reishi mushroom for, 3:1903
sore throat and, 3:1514, 1515; 4:2105, 2106
tonsillitis and, 4:2245
urine therapy for, 4:2295
Monosodium glutamate (MSG), 1:469; 2:702*t*
Monotherapy, epilepsy and, 2:778
Monounsaturated fats, in Mediterranean diet, 3:1454
Monroe, Marilyn, 1:148
Montelukast sodium, for asthma, 1:157–158
Montezuma I, 1:640
Mood disorders. *See specific disorders*
Mood stabilizing agents, 1:258
Moore, Michael, 3:1653
Moose elm. *See* Slippery elm
MORAs (mandibular orthopedic repositioning appliances), 2:1078
Moraxella catarrhalis
ear infections, 2:732
sinus infections, 4:2068
Mori, Shigeaki, 3:1903
Morinda citrifolia. *See* Noni
Mormon tea. *See* Ephedra
Morning sickness, 3:**1516–1517**
acupressure for, 3:1802
anise for, 1:94
cyperus for, 1:651
ipecac for, 2:1207
lycium fruit for, 3:1376
overview, 3:1797, 1799
peppermint for, 3:1728, 1730
pyridoxine for, 3:1517, 1857; 4:2338
raspberry for, 3:1884
sepia for, 4:2028
shiatsu for, 4:2047
tangerine peel for, 4:2196
vitamin K for, 4:2354
Morrison, F. R., 4:2197
Mortality rates
anorexia nervosa, 1:101
bladder cancer, 1:281–282
blood poisoning, 1:294, 295
breast cancer, 1:326–327
cancer, 1:383, 392
cervical cancer, 1:451
colorectal cancer, 1:581
congenital syphilis, 4:2182
gastritis, 2:903
heart attacks, 2:1013
hepatitis, 2:1040
Hodgkin's disease, 2:1075
influenza, 2:1189
kidney infections, 2:1274
leukemia, 3:1335
lung cancer, 3:1367
lymphomas, 3:1420
measles, 3:1446, 1447
meningitis, 3:1472
mumps encephalitis, 3:1545
ovarian cancer, 3:1668, 1672
pancreatic pseudocyst ruptures, 3:1694
pancreatitis, 3:1695, 1696
pneumonia, 3:1679, 1772
prostate cancer, 3:1828
prosthetic valve endocartitis, 4:2136
streptococcal toxic shock syndrome, 4:2251
strokes, 4:2155, 2156
systemic lupus erythematosus, 4:2189
tetanus, 4:2214, 2215, 2216
toxic megacolon, 2:1185
toxic shock syndrome, 4:2251
ulcer complications, 4:2284
whooping cough, 4:2380
See also Deaths
Mortification root. *See* Marsh mallow
Mosquito plant. *See* Pennyroyal
Mosquitoes
arka and, 1:133
malaria from, 3:1414, 1415, 1416, 1417
Mother of herbs. *See* Plantain
Mother of thyme. *See* Thyme
Mother patches (pityriasis rosea), 3:1759
Mother tinctures (flower remedies), 2:852
Mother's hair. *See* Cornsilk
Motherwort, 3:*1518*, **1518–1519**
menopause, 3:1475
uterine cancer, 4:2299
Motion sickness, 3:**1519–1523**
belladonna for, 1:222
ginger for, 2:922
homeopathy for, 2:1090
horehound for, 2:1102
peppermint for, 3:1730, 1732
spearmint for, 4:2119
Motor attacks, 2:776
Motor impairment
cerebral palsy, 1:440, 442, 444
sensory integration disorder, 4:2025, 2026
Motor tics, Tourette syndrome and, 4:2247, 2248, 2249
Mountain balm. *See* Yerba santa
Mountain cranberry. *See* Uva ursi
Mountain grape. *See* Barberry
Mountain hollyhock. *See* Wasabi
Mountain lovage. *See* Osha
Mountain paint. *See* Notoginseng root
Mountain tea. *See* Wintergreen
Mountain thyme. *See* Thyme
Mountain tobacco. *See* Arnica
Mouse ear. *See* Chickweed
Mouth, dry. *See* Dry mouth

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Mouth cancer, 2:967–968; 4:2123
Mouth root. *See* Coptis
Mouth sores
gentiana for, 2:916
raspberry for, 3:1883, 1884
Mouth ulcers
chamomile for, 1:455
deglycyrrhizinated licorice for, 2:662
grapefruit seed extract for, 2:965
kali bichromium for, 2:1255
lycopodium for, 3:1380
mercurius vivus for, 3:1484
ophiopogon for, 3:1637
periwinkle for, 3:1736
sheep sorrel for, 4:2042
from syphilis, 4:2181
systemic lupus erythematosus and, 4:2187
Mouthwashes
cinnamon in, 1:543
comfrey in, 1:587
coptis in, 1:607
echinacea in, 2:739
eucalyptus in, 2:793
grapefruit seed extract in, 2:965
for gum diseases, 2:977, 978
for halitosis, 2:985, 986
neem in, 3:1588
with sage, 4:1970
sesame oil as, 4:2030
for thrush, 4:2404
See also Gargles
Movement therapy, 3:**1523–1528**
Aston-Patterning, 1:161–163
colorectal cancer, 1:580
energy medicine and, 2:762
Hellerwork, 2:1031
hyperopia, 2:1127
labyrinth walking as, 3:1297
meningitis, 3:1472
as mind/body medicine, 3:1508
multiple sclerosis, 3:1543
neck pain, 3:1586
neuralgia, 3:1597
ovarian cancer, 3:1670
peripheral neuropathy, 3:1734
pneumonia, 3:1772
rheumatoid arthritis, 3:1926
schizophrenia, 4:1999
scoliosis, 4:2005
somatics, 4:2102–2104
strokes, 4:2156
toxic shock syndrome, 4:2252
in traditional Chinese medicine, 4:2257–2258
See also Dance therapy
Moving cupping, 1:639
Moxa. *See* Mugwort
Moxibustion, 3:*1528*, **1528–1529**, *1529*
acupuncture and, 1:18
irritable bowel syndrome, 2:1221
low back pain, 3:1365
mugwort in, 1:316; 3:1528, 1533
osteoarthritis, 3:1656
overview, 1:316; 4:2256–2257
sprains and strains, 4:2128
tendinitis, 4:2210
Moxifloxacin, for tuberculosis, 4:2277
Moyers, Bill, 3:1506
Mozart Center, 4:2110
Mozart effect, 3:1551
MPA (depomedroxyprogesterone acetate), for hot flashes, 2:1111
MRI. *See* Magnetic resonance imaging
MRSA. *See* Methicillin-resistant *Staphylococcus aureus*
MS. *See* Multiple sclerosis
MSG (monosodium glutamate), 1:469; 2:702*t*
MSM (methylsulfonylmethane), 3:**1529–1532**
low back pain, 3:1365
seniors, 4:2017
mThong-byed (Tibetan medicine), 4:2240
MTI (Metabolic Technologies, Inc.), 1:225
MTX. *See* Methotrexate
Mu Xiang. *See* Aucklandia
Mu Xiang Shun Qi Wan, 1:178–179
Much Ado About Nothing (Shakespeare), 1:288
Mucilage
Chinese yams, 1:506
coltsfoot, 1:586
marsh mallow, 3:1434–1435
psyllium, 3:1850
usnea, 4:2297
Mucopolysaccharides, 1:410; 3:1490–1491
Mucorales infections, sinus infections and, 4:2068
Mucuna seeds, 3:1708; 4:2263
Mugwort, 3:**1532–1535**, *1533*
as insect repellent, 2:1230
in moxibustion, 1:316; 3:1528, 1533
Mukhtar, Hasan, 2:967
Mukul myrrh tree. *See* Guggul
Muladhara, 1:453
Mullein, 3:*1535*, **1535–1538**
asthma, 1:156
bronchitis, 1:340
chickenpox, 1:478
ear infections, 2:733
earaches, 2:736
emphysema, 2:754
hay fever, 2:999
laryngitis, 3:1309
ovarian cancer, 3:1671
ovarian cysts, 3:1676
pleurisy, 3:1768
rhinitis, 3:1929
swimmer's ear, 4:2177
tuberculosis, 4:2276
wheezing, 4:2372
Multifocal leukoencephalopathy (PML), 1:35
Multiple chemical sensitivity (MCS), 3:**1538–1541**
environmental therapy for, 2:765
veganism for, 4:2319
vegetarianism for, 4:2326
Multiple idiopathic hemorrhagic sarcoma. *See* Kaposi's sarcoma
Multiple sclerosis (MS), 3:**1541–1544**, 1541*t*
apitherapy for, 1:120, 121; 4:2331, 2332
Gerson therapy for, 2:919
gluten-free diet for, 2:942
homeopathy for, 2:1094
Kelley-Gonzalez diet for, 2:1267
linoleic acid for, 3:1348
meditation for, 3:1449
metabolic therapies for, 3:1491
myotherapy for, 3:1558
reflexology for, 3:1898
therapeutic touch for, 4:2223
Trager psychophysical integration for, 4:2259
trigger point therapy for, 4:2270
urine therapy for, 4:2295
yoga for, 2:993; 4:2409
Multiple Sclerosis Association, 4:2332
Multiple subpial transection, for epilepsy, 2:779
Multisensory sound therapy, 4:2108
Mum. *See* Chrysanthemum flower
Mumps, 3:*1544*, **1544–1548**
arsenicum album for, 1:144
cornsilk for, 1:611
lycopodium for, 3:1380, *1381*
peppermint for, 3:1731
phytolacca for, 3:1748
pulsatilla for, 3:1852
rhus toxicodendron for, 3:1936
silica for, 4:2067
urine therapy for, 4:2295
Mung beans, in Sun's soup, 4:2170
Munro, Henry, 2:1141
Mupirocin, 1:303; 2:1163
Murad, Ferid, 1:131
Murray, Michael, 3:1543
Muscdier. *See* Nutmeg
Muscle pain. *See* Myalgia
Muscle relaxants
cerebral palsy, 1:444
low back pain, 3:1366
magnolia as, 3:1410
nutmeg as, 3:1610
sciatica, 4:2002
temporomandibular joint syndrome, 4:2207

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Muscle spasms and cramps, 3:**1548–1550**
catnip for, 1:419
cicada for, 1:541
coix for, 1:557
compresses for, 2:1122
cramp bark for, 1:622
electroacupuncture for, 2:749
horse chestnut for, 2:1105
Jamaican dogwood for, 2:1231
lemon balm for, 3:1326
lemongrass for, 3:1329
licorice for, 3:1342
lycopodium for, 3:1380
massage therapy for, 3:1441, 1442
menopause, 3:1476
mistletoe for, 3:1510
MSM for, 3:1530
peppermint for, 3:1728, 1729
polarity therapy for, 3:1774
probiotics for, 3:1820
skullcap for, 4:2075
squawvine for, 4:2129
Swedish massage for, 4:2172
sweet clover for, 4:2175
tetanus and, 4:2215
Thai massage for, 4:2218
therapeutic touch for, 4:2224
trigger point therapy for, 4:2270
white willow for, 4:2376
Muscle strain. *See* Sprains and strains
Muscle tension
cramp bark for, 1:622
massage therapy for, 3:1439, 1442
temporomandibular joint syndrome and, 4:2206, 2207
trigger point therapy for, 4:2270
Muscle testing. *See* Applied kinesiology
Muscles
Alexander technique and, 1:46–48, 49
applied kinesiology and, 1:124–128
arginine and, 1:131
beta-methylbutyric acid and, 1:224–225
green tea and, 2:968
Lou Gehrig's disease and, 3:1360, 1361–1362
ortho-bionomy and, 3:1648, 1649
relaxation therapy and, 3:1905–1907
somatics and, 4:2102, 2103
stone massage for, 4:2145
Swedish massage for, 4:2172
Trager psychophysical integration for, 4:2259
vitamin E for, 4:2351
See also Motor impairment
Muscular dystrophy, Trager psychophysical integration for, 4:2259
Muscular Dystrophy Association, 3:1362
Musculoskeletal diseases
eucommia bark for, 2:795
hypnotherapy for, 2:1141
lomilomi for, 3:1358
MSM for, 3:1530
osteopathy and, 3:1659
stevia for, 4:2138
Musculoskeletal system
therapeutic touch and, 4:2222
valerian for, 4:2312
Muscus. *See* Iceland moss
Mushrooms
for leukemia, 3:1334
lymphomas, 3:1420
poisoning from, 2:861; 3:1503
See also specific types of mushrooms
Mushrooms as Medicine, 3:1413
Music-thanatology, 3:1553
Music therapy, 3:*1550,* **1550–1554**
Alzheimer's disease, 1:68
childbirth, 1:484
color therapy and, 1:578
heart attacks, 2:1012
heart disease, 2:1018
insomnia, 2:1195
pain, 3:1686
peptic ulcers, 4:2286
sensory integration disorder, 4:2026
stress, 4:2152
Muskatbaum. *See* Nutmeg
Must, wine from, 2:963
Musta. *See* Cyperus
Mustard
corns and calluses, 1:610
as flower remedy, 1:198; 2:850*t,* 851
knee pain, 2:1282
wheezing, 4:2372
Mutha. *See* Cyperus
My Water Cure (Kneipp), 2:1285, 1286
Myag-byed (Tibetan medicine), 4:2240
Myalgia
arnica for, 1:135
belladonna for, 1:222
essential oils for, 2:788
eucalyptus for, 2:793, 794
fibromyalgia and, 2:839
French green clay for, 2:866
Gulf War syndrome and, 2:974
hyssop for, 2:1152
magnetic therapy for, 3:1408–1409
mugwort for, 3:1533
peppermint for, 3:1731
shiatsu for, 4:2046
St. John's wort for, 4:2132
white willow for, 4:2376
wintergreen for, 4:2387
witch hazel for, 4:2389
wormwood for, 4:2396
Myalgic encephalomyelitis. *See* Chronic fatigue syndrome
Myasthenia gravis, ganoderma for, 2:887
Mycobacterial infections, 1:34; 2:1273
Mycobacterium tuberculosis. See Tuberculosis
Mycoplasma pneumoniae infections, 3:1770, 1772
Myelography, 2:1056
Myeloma, immuno-augmentation therapy and, 2:1160
Mylicon, for colic, 1:568
Myocardial infarctions. *See* Heart attacks
Myocardial ischemia, 2:1015, 1222, 1223
Myocardial perfusion scintigraphy, 2:1224
Myocarditis. *See* Heart diseases
Myofascial pain, massage for, 3:1959; 4:2172
Myofascial release, 1:627; 3:1660
Myofascial trigger point therapy. *See* Trigger point therapy
Myoinositol. *See* Inositol
Myokinetics, Aston-Patterning and, 1:161
Myomas. *See* Uterine fibroids
Myomectomy, for uterine fibroids, 4:2303
Myong-byed (Tibetan medicine), 4:2240
Myopia, 3:**1554–1557,** 1916
Myotherapy, 3:**1557–1559;** 4:2269–2270
Myotonia, muscle cramps and, 3:1549
Myrica species. *See* Bayberry
Myringotomy, for ear infections, 2:734
Myristica fragrans. See Nutmeg
Myrrh, 3:**1559–1562**
angina, 1:91
atherosclerosis, 1:166
athlete's foot, 1:168
canker sores, 1:398
cuts and scratches, 1:648
dysbiosis, 2:724
fungal infections, 2:877
gonorrhea, 2:950
gum diseases, 2:978
halitosis, 2:985
hangovers, 2:988
heart disease, 2:1018
infertility, 2:1180
itching, 2:1229
tonsillitis, 4:2245
Myrtle
aromatherapy uses, 1:139
in hydrotherapy, 2:1121, 1122
Myrtle wax, from bayberry, 1:208–209
Mysoline (primidone), for epilepsy, 2:778
Myss, Caroline, 2:763
Mystyldene. *See* Mistletoe
Myxedema, 2:1149

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

N

N-acetyl-glucosamine. *See* Glucosamine
N-acetylcysteine
as antidote, 1:473
as antioxidant, 1:111
for hay fever, 1:55
NADH, for chronic fatigue syndrome, 1:533
Nadi parkiksha. *See* Pulse diagnosis
NAG (N-acetyl-glucosamine). *See* Glucosamine
Nagelschmidt, Franz, 2:699
Nahrung (journal), 3:1640
Nail psoriasis, 3:1836
Nails
contact dermatitis, 2:673
fungal infections, 2:876
grapefruit seed extract for, 2:966
horsetail for, 2:1106, 1107
ingrown, 2:*1190,* 1190–1192
kelp for, 2:1269
silica for, 4:2067
tea tree oil for, 4:2198
Naked lady. *See* Colchicum
Naloxone, as antidote, 1:472
Naltrexone, for alcoholism, 1:45
Naproxen
headaches, 2:1005
menstruation disorders, 3:1483
migraine, 3:1500
Naps, for narcolepsy, 3:1564
Narcolepsy, 3:**1563–1565;** 4:2083, 2086, 2415
Narcotics
abuse of, 4:2158, 2160
for childbirth, 1:485
for frostbite, 2:873
marijuana as, 3:1432
for pain, 3:1686
for peripheral neuropathy, 3:1734
for sleep disorders, 4:2086
NARHA (North American Riding for the Handicapped), 3:1527
NASA (National Aeronautics and Space Administration), 1:242; 3:1520
Nasal cleansing, in panchakarma, 3:1690
Nasal lavage, for sinus infections, 4:2069
Nasal sprays
bedwetting, 1:214
sinus infections, 4:2070
Nasal strips, for snoring, 4:2098
Nasopharyngeal carcinoma, 3:1515
Nasya (nasal cleansing), 3:1690
Natalizumab, for Crohn's disease, 1:633
National Academy of Sciences (NAS)
environmental therapy, 2:767
fiber recommendations, 2:1067
sodium recommendations, 4:2101
vitamin E, 4:2351
See also Food and Nutrition Board
National Accreditation Commission for Schools and Colleges of Acupuncture and Oriental Medicine, 2:1045
National Advertising Division, 3:1685
National Aeronautics and Space Administration (NASA), 1:242; 3:1520
National Ambulatory Medical Care Survey, 2:1164
National Association of Jewish Chaplains, 3:1795
National Association of Nurse Massage Therapists, 4:2174
National Association of School Nurses, 3:1340
National Board for Certified Counselors, Inc., 2:658
National Board for Hypnotherapy and Hypnotic Anaesthesiology (NBHA), 2:1143
National Board of Chiropractic Examiners (NBCE), 1:127
National Cancer Institute
amygdalin study, 1:129
antioxidants, 1:110; 3:1371
belladonna study, 1:222, 325
breast cancer study, 1:325
carotenoids, 1:404, 406
cartilage study, 1:523
essiac tea, 2:790
Gerson therapy, 2:1248
glutathione, 2:940
grape seed extract, 2:961
high fiber diet, 2:1068
HRT health risks, 3:1665
immuno-augmentation therapy, 2:1159
Livingston-Wheeler therapy, 3:1352
maitake, 3:1413
mistletoe, 3:1511
ovarian cancer, 3:1668
pau d'arco, 3:1719
prostate cancer, 3:1828
riboflavin, 3:1939
Seventh Day Adventists, 4:2322
soy protein, 4:2115
Sun's soup, 4:2169, 2170, 2171
National Center for Complementary and Alternative Medicine (NCCAM)
Ayurvedic medicine, 3:1690, 1691
botanical medicine regulation, 1:320
cancer research, 1:389, 390
chiropractic, 1:507, 508
cirrhosis, 1:547
creatine, 1:75
echinacea, 2:739
feverfew, 2:834
flaxseed, 2:846
ganoderma, 2:888
hepatitis, 2:1039
ischemia, 2:1225
kava kava, 2:1261–1262
Kelley-Gonzalez diet, 2:1266–1267
milk thistle, 3:1503
oxygen therapy, 3:1680
pranic healing, 3:1792
probiotics, 3:1305
qigong, 3:1862
spirituality, 3:1864
National Center for Environmental Health, 3:1316
National Center for Homeopathy
childhood nutrition, 1:494
education and training, 2:1088, 1092, 1096
National Center for Post-Traumatic Stress Disorder, 3:1783
National Center for the Preservation of Medicinal Herbs, 4:2087
National Center of Medical Rehabilitation Research, 3:1943
National Certification Board for Therapeutic Massage and Bodywork (NCBTMB)
massage therapy, 3:1442
Russian massage, 3:1960
shiatsu, 4:2047
sports massage, 4:2126
stone massage, 4:2146
National Certification Board for Trigger Point Myotherapy, 4:2271
National Cholesterol Education Program
cholesterol, 1:519
dietary fat, 3:1625
insulin resistance, 2:1198
veganism and, 4:2323
National College of Naturopathic Medicine, 2:1053, 1088, 1092, 1096; 3:1581
National Commission for Certification of Acupuncturists (NCCA), 1:187
National Commission for Certifying Agencies, 3:1442
National Commission for the Certification of Acupuncture and Oriental Medicine (NCCAOM), 1:500; 2:1045; 4:2258
National Comprehensive Cancer Network, 3:1669
National Dental Association, 2:1075
National Diabetes Information Clearinghouse (NDIC), 2:1199

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

National Emphysema Therapy Trial (NETT), 2:756
National Eye Institute, 1:416
National Formulary
compound fluidextract of trifolium in, 4:2184
dandelion in, 2:658
garcinia in, 2:890
labeling standards, 1:374; 3:1504
mullein in, 3:1536
red clover in, 3:1891
slippery elm in, 4:2088
standardized extracts and, 2:1048
valerian in, 4:2312
National Health and Nutrition Examination Survey, 4:2101
National Heart, Lung, and Blood Institute, 1:519; 4:2316
National Hospice and Palliative Care, 2:1142
National Information Center for Children and Youth with Disabilities, 1:445
National Institute of Allergy and Infectious Diseases (NIAID), 2:1045; 3:1387, 1924
National Institute of Arthritis and Musculoskeletal and Skin Diseases, 3:1422; 4:2234, 2235
National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), 2:1199, 1201
National Institute of Environmental Health Sciences, 2:767
National Institute of Mental Health (NIMH), 1:378; 4:1992, 1993, 1999
National Institute of Neurological Disorders and Stroke (NINDS), 1:22, 23, 408; 4:2156
National Institute of Reflexology, 3:1896
National Institute on Aging (NIA), 1:65; 2:683
National Institute on Deafness and Communication Disorders (NIDCD), 4:2243
National Institutes of Health (NIH)
acupuncture, 1:17; 3:1482–1483; 4:2359
Adie's pupil, 1:23
African pygeum, 1:26
autism, 1:189
black cohosh, 2:1109
calcium, 1:380
cancer costs, 1:383
carpal tunnel syndrome, 1:408
choline, 1:522
coix, 1:558
creatine, 1:629
dizziness, 2:712
dyslexia, 2:725
environmental therapy, 2:767
garlic, 1:36; 2:896
glucosamine, 2:936
gluten-free diet, 2:945
gout, 2:955
gymnema, 2:980
headaches, 2:1004
insomnia, 2:1193
insulin resistance, 2:1199
interstitial cystitis, 2:1201
lipid study, 3:1816
meditation, 3:1449
migraine, 3:1500
milk thistle, 3:1503
placebo surgery, 3:1762
saw palmetto, 4:1979
Seventh Day Adventists, 4:2322, 2326
soy protein, 4:2115
thunder god vine, 4:2234
traditional Chinese medicine, 2:1044; 4:2258
See also National Center for Complementary and Alternative Medicine; Office of Alternative Medicine
National Library for Health (NLH), 1:629
National Library of Medicine, 1:558
National Lung Screening Trial, 3:1369
National Lymphedema Network, 3:1388
National Mental Health Association, 3:1785
National Multiple Sclerosis Society, 1:121; 3:1542
National Organic Standards Board (NOSB), 3:1642
National Plan to Eliminate Syphilis in the United States, 4:2180
National Research Council, 2:1068; 4:2009, 2010
National Resources Conservation Center, 1:298
National Reye's Syndrome Foundation, 4:2377
National Sleep Foundation (NSF), 2:1193, 1194
National Standard, 1:77
National Toxicology Program (NTP), 1:287; 4:2232
Native American medicine, 3:**1565–1567**
agastache, 1:27
alfalfa, 1:50
American ginseng, 2:924
bloodroot, 1:296, 297
blue cohosh, 1:298
coptis, 1:607
cramp bark, 1:622
echinacea, 2:738
eupatorium, 2:797
evening primrose oil, 2:800
goldenseal, 2:948
hops, 2:1100
horsetail, 2:1106
jojoba, 2:1241–1242
juniper, 2:1249
lobelia, 3:1354
lomatium, 3:1356
pennyroyal, 3:1726
prince's pine, 3:1814
red cedar, 3:1889
slippery elm, 4:2087
spiritual healing, 3:1795
squawvine, 4:2129
white willow, 4:2375–2376
witch hazel, 4:2388
yucca, 4:2417–2418
Natrum muriaticum, 3:*1567*, **1567–1569**
anemia, 2:1216
in cell salt therapy, 1:433
common cold, 1:591
depression, 2:671
gum diseases, 2:978
hay fever, 2:999
heartburn, 2:1023
in homeopathy, 2:1084*t*
pityriasis rosea, 3:1760
premenstrual syndrome, 3:1806
sneezing, 4:2096
Natrum phosphoricum, 1:433; 3:1800
Natrum sulphuricum, 1:157, 433
Natural Dietary Supplements Pocket Reference, 3:1893
Natural family planning, 1:486
Natural hormone replacement therapy (NHRT), 1:248–251; 3:**1569–1575**
Natural hygiene diet, 1:396; 2:692–693; 3:**1575–1577**
Natural Standard (organization), 1:630; 2:683, 798; 3:1383
Natural thyroid hormone extracts, 2:990
Natural *vs.* organic foods, 3:1643
Nature of herbs, traditional Chinese medicine and, 2:1043
Naturopathic medicine, 3:**1577–1581**
betaine hydrochloride and, 1:234
botanical medicine and, 1:317
cancer treatment, 1:389
childhood nutrition and, 1:494
chronic fatigue syndrome, 1:533
detoxification and, 2:678
education in, 2:1053
emphysema, 2:756
endometriosis, 2:760
fever, 4:1987
glaucoma, 2:934
gum diseases, 2:977–978
history, 2:1050
as holistic medicine, 2:1080, 1081
juice therapy and, 2:1246–1247
laryngitis, 3:1308
magnesium in, 3:1405, 1406

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Naturopathic medicine *(continued)*
migraine, 3:1500
osteoarthritis, 3:1656
ovarian cancer, 3:1670
ovarian cysts, 3:1676
premenstrual syndrome, 3:1805
scarlet fever, 4:1987
selenium in, 4:2009
sleep disorders, 4:2085
tonsillitis, 4:2245
urinary incontinence, 4:2293
usnea in, 4:2298
warts, 4:2363
Naturopathic Physicians Licensing Examination (NPLEX), 3:1581
Naughty man's cherries. *See* Belladonna
Naumburg, Margaret, 1:146
Nausea, 3:**1581–1584**
cinnamon for, 1:543
codonopsis root for, 1:554
evodia fruit for, 2:801
gelsemium for, 2:909
ginger for, 2:705, 921, 922
grains-of-paradise for, 2:960
horehound for, 2:1102
ipecac for, 2:1207
kali bichromium for, 2:1255
Kampo medicine for, 2:1257
lobelia for, 3:1355
magnolia for, 3:1410
marijuana for, 3:1432
massage therapy for, 3:1441
from morning sickness, 3:1516–1517
nutmeg for, 3:1610, 1611
passionflower for, 3:1714
pennyroyal for, 3:1726
peppermint for, 2:704; 3:1728, 1730
pinellia for, 3:1757
pyridoxine for, 3:1857
shiatsu for, 4:2046, 2047
spearmint for, 4:2119
therapeutic touch for, 4:2223
See also Antiemetics
Navaho opuntia cactus. *See* Prickly pear cactus
Naval Medical Center, 3:1520
NAVS (North American Vegetarian Society), 4:2319, 2329
NBCE (National Board of Chiropractic Examiners), 1:127
NBHA (National Board for Hypnotherapy and Hypnotic Anaesthesiology), 2:1143
NCBTMB. *See* National Certification Board for Therapeutic Massage and Bodywork
NCCA (National Commission for Certification of Acupuncturists), 1:187
NCCAM. *See* National Center for Complementary and Alternative Medicine
NCCAOM (National Commission for the Certification of Acupuncture and Oriental Medicine), 1:500; 2:1045; 4:2258
NDIC (National Diabetes Information Clearinghouse), 2:1199
Nearsightedness. *See* Myopia
Nebel, Anthoine, 1:252
Necher Hospital, 4:2046
Neck cancer, immuno-augmentation therapy and, 2:1160
Neck pain, 3:**1584–1588**
acupuncture for, 3:1686
kudzu for, 2:1291
myotherapy for, 3:1558
prolotherapy for, 3:1823, 1824
Rolfing for, 3:1941
shiatsu for, 4:2046
Necrotizing enterocolitis, magnesium and, 3:1405
Necrotizing pancreatitis, 3:1693, 1695
Necrotizing periodontal diseases, 2:976
See also Periodontitis
Nedocromil, for asthma, 1:157
Needles
acupuncture, 1:*16*, 18, 186–187
electroacupuncture, 2:749–750
HIV transmission and, 1:33
Neem, 3:**1588–1590**
bites and stings, 1:261
gum diseases, 2:978
ingrown nails, 2:1191
scabies, 4:1982
Negative symptoms of schizophrenia, 4:1994, 1995
Nei Ching (ancient text), 1:16
Nei Jing (Chinese text), 1:502; 3:1791
Neisseria gonorrhoeae
epididymitis from, 2:774
pelvic inflammatory disease from, 3:1722
See also Gonorrhea
Neisseria meningitidis, meningitis from, 3:1470
Neixiao lei li, for scrofula, 4:1976
Nelson, Mildred, 2:1114
Nelson-Hannigan, Mary, 4:2145
Nematodes. *See* Roundworms
Neo-bladder, 1:281
Neoadjuvant chemotherapy, 1:391
See also Chemotherapy
Neonatal Graves' disease, 2:1138
Neonatal herpes, 2:910, 911, 912
Neonatal jaundice, 1:441
Neonatal lupus, 4:2189
Neonatal tetanus, 4:2215, 2216
Neoral. *See* Cyclosporine
Neoruscogenin, 1:366
Neovastat, 1:411
Nepeta cataria. *See* Catnip
Nephritis
damiana for, 2:653
uva ursi for, 4:2305
wintergreen for, 4:2387
Neriantin, 2:707
Nerium oleander, cardiac glycosides from, 2:707
Neroli
anxiety, 1:115
aromatherapy uses, 1:139
atractylodes with, 1:174
pleurisy, 3:1768
post-traumatic stress disorder, 3:1785
sleep disorders, 4:2085
stress, 4:2151
tonsillitis, 4:2245
Nerve compression/entrapment/impingement. *See* Pinched nerves
Nerve conduction velocity testing, 1:408
Nerve pain. *See* Neuralgia
Nerve-sparing prostatectomy, 3:1827
Nervous colon. *See* Irritable bowel syndrome
Nervous system
alcohol effect on, 1:41, 42
applied kinesiology and, 1:126
mind/body medicine and, 3:1506
osteopathy and, 3:1659
peripheral neuropathy and, 3:1733
schisandra for, 4:1989
Swedish massage for, 4:2172
systemic lupus erythematosus and, 4:2187
Thai massage for, 4:2218
triphala for, 4:2272
valerian for, 4:2312
Nervous system diseases
ademetionine for, 3:1493
biofeedback for, 3:1507
coenzyme Q10 for, 1:555
electroacupuncture for, 2:749
evening primrose oil for, 2:800
ganoderma for, 2:888
homeopathy for, 2:1086
kelp for, 2:1269
lachesis for, 3:1299
ledum for, 3:1325
meditation for, 3:1449
mononucleosis and, 3:1514
panchakarma for, 3:1689
peppermint for, 3:1729
Raynaud's syndrome and, 3:1886
stevia for, 4:2138
thuja for, 4:2231
Tibetan medicine for, 4:2239
triphala for, 4:2272
urinary incontinence and, 4:2291
vomiting and, 4:2357
NETT (National Emphysema Therapy Trial), 2:756

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Nettle
allergies, 1:54, 55
anemia, 1:85
anxiety, 1:116
asthma, 1:156
bedwetting, 1:213
binge eating disorder, 1:241
bites and stings, 1:261
burns, 1:362
common cold, 1:591
dermatitis, 2:674
eczema, 2:743
fractures, 2:864
gout, 2:957
hay fever, 1:494; 2:999
hives, 2:1072
infertility, 2:1180
iron in, 2:1216
menstruation disorders, 3:1482
natural hormone replacement therapy and, 3:1573
neuralgia, 3:1590
ovarian cancer, 3:1671
ovarian cysts, 3:1676
panic disorders, 3:1698
pityriasis rosea, 3:1760
pregnancy, 3:1799
rashes, 3:1881, 1882
rhinitis, 3:1929
sneezing, 4:2096
stress, 4:2152
systemic lupus erythematosus, 4:2188
urinary incontinence, 4:2293
wheezing, 4:2372
worms, 4:2393
yellow dock for, 4:2406
Network for Sustained Elimination of Iodine Deficiency, 2:1204
Neural hearing loss, 2:1008, 1009
Neural therapy, 2:1078; 3:**1593–1595,** *1594*
Neural tube defects, 2:856; 3:1493
Neuralgia, 3:**1595–1598**
colchicum for, 1:560
eucalyptus for, 2:794
gelsemium for, 2:909
hypnotherapy for, 2:1141
Jamaican dogwood for, 2:1231
lavender for, 3:1311
lemongrass for, 3:1329
marijuana for, 3:1432
passionflower for, 3:1715
postherpetic, 3:1595, 1597–1598; 4:2051, 2052, 2053, 2054
rhus toxicodendron for, 3:1936, 1937
wild oat for, 4:2385
wintergreen for, 4:2387
Neuralgia-inducing cavitational osteonecrosis (NICO), 2:1078
Neurally mediated hypotension, chronic fatigue syndrome and, 1:532
Neurasthenia, 1:530
See also Chronic fatigue syndrome
Neuroendocrine theory, acupuncture and, 1:15, 17
Neurofeedback, 1:243–244, 245; 4:2249
Neurofibrillary tangles, 1:65; 2:664
Neurokinetics, 3:1525
Neurokinin-1 antagonists, for motion sickness, 3:1522
Neuroleptics. *See* Antipsychotic agents
Neurolinguistic programming, 3:**1598–1599,** 1698
Neurological disorders. *See* Nervous system diseases
Neurology (journal), 4:2095
Neuromuscular massage, 3:1440
Neuromuscular scoliosis, 4:2004, 2005
See also Scoliosis
Neurontin. *See* Gabapentin
Neuropathy, defined, 3:1752
Neurosyphilis, 4:2181–2182
See also Syphilis
Neurotoxins, food poisoning and, 2:859, 860, 861
Neurotransmitters
bipolar disorder, 1:256
depression, 2:669
obsessive-compulsive disorder, 3:1628
shiatsu, 4:2046
Tourette syndrome, 4:2248
vitamin C, 4:2343
New England Journal of Medicine
asthma, 1:155
blue cohosh, 1:299
fasting, 2:814
homeopathy, 2:1086
Livingston-Wheeler therapy, 3:1352
marijuana, 3:1432
mind/body medicine, 3:1506
MMR vaccine, 3:1547
saw palmetto, 4:1979
strokes, 4:2156
New England School of Homeopathy, 2:1088, 1092, 1096
The New Nutrition (Colgan), 1:110
New York College of Osteopathic Medicine, 1:269
New York Institute of Technology, 1:37
New York Medical College, 1:646; 3:1409, 1413
New York State Psychiatric Institute, 4:2008
New York Times, 2:1099; 4:2112
Newborns
chickenpox and, 1:479
chlamydia and, 1:512
choline needs, 1:522
gonorrhea, 1:572
Graves' disease, 2:1138
hepatitis and, 2:1037
herpes in, 2:910, 911, 912
hypothyroidism in, 2:1148
jaundice in, 1:441; 2:1234, 1235, 1236
meningitis in, 3:1470, 1471
music therapy for, 3:1552
omega-3 fatty acids for, 3:1631
systemic lupus erythematosus, 4:2189
tetanus and, 4:2215, 2216
vitamin K for, 4:2354, 2355
Newman-Bluestein, Donna, 2:657
NexMed, Inc., 2:1166
NF labeling, 1:374; 3:1504
NHRT. *See* Natural hormone replacement therapy
NIA (National Institute on Aging), 2:683
Niacin, 3:**1599–1602,** 1599*t;* 4:2338
blood clots, 1:292
cholesterol control, 1:519, 520; 4:2340
for fatigue, 2:816
hangovers, 2:988
headaches, 2:1004
heart disease, 3:1580
hypothyroidism, 2:1150
ischemia, 2:1225
menstruation disorders, 3:1482
muscle cramps, 3:1550
peripheral neuropathy, 3:1734
schizophrenia, 4:1998
Niacin deficiency, 3:1600–1601; 4:2339
NIAID. *See* National Institute of Allergy and Infectious Diseases
Niaouli, for emphysema, 2:755
NICO (neuralgia-inducing cavitational osteonecrosis), 2:1078
Nicorandil, for angina, 1:91
Nicotine
devil's claw and, 2:681
health risks, 4:2090–2091
Nicotine replacement therapy, 4:2093–2094
NicQb (vaccine), 4:2094
NicVAX (vaccine), 4:2094
NIDCD (National Institute on Deafness and Communication Disorders), 4:2243
NIDDK (National Institute of Diabetes and Digestive and Kidney Diseases), 2:1199, 1201
Niehans, Paul, 1:434, 436, *436*
Nigella sativa. See Black cumin seed extract
Nigellone, 1:273
Night blindness, 3:**1602–1604;** 4:2119

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Night guards (teeth), 1:344; 4:2207–2208
Night shift work, colorectal cancer and, 1:579
Night vision devices, 3:1604
Nightmare disorder, 4:2083
Nighttime incontinence. *See* Bedwetting; Urinary incontinence
Nigral implants, for Parkinson's disease, 4:2263
NIH. *See* National Institutes of Health
Nihon University, 2:795
Nilutamide, for prostate cancer, 3:1829
NIMH. *See* National Institute of Mental Health
NINDS. *See* National Institute of Neurological Disorders and Stroke
Nine Universal Principles (Breema), 1:334
Nipple problems (breast-feeding), 1:328, 329; 4:2129, 2130
Niruha basti. *See* Enemas
Nissen, Hartwig, 3:1439
Nitazoxanide, for trichomoniasis, 4:2268
Nitrates
  chemical poisoning and, 1:473
  heart disease, 2:1018
  toxicity, 2:702*t*
Nitrazoxinide, for parasitic infections, 3:1705
Nitric oxide, arginine and, 1:130–131
The Nitrilosides (Vitamin B(sub17??)) - Their Nature, Occurrence and Metabolic Significance (Antineoplastic Vitamin B(sub17??)) (Krebs), 1:129
Nitrogen reductase, in barley, 1:204
Nitroglycerin
  angina, 1:91
  heart attacks, 2:1013
  ischemia, 2:1225–1226
  Raynaud's syndrome, 3:1887
Nits, in lice infestations, 3:1337–1340
Nixon, Richard, 1:13, 16
Nizoral. *See* Ketoconazole
Nocebo effect, 3:1762
Nociceptors
  headaches, 2:1002
  migraine, 3:1498
  pain, 3:1683, 1684
Nocturia, prostate enlargement and, 3:1830
Nocturnal myoclonus
  defined, 4:2083
  insomnia and, 2:1194
  restless leg syndrome and, 3:1910
  treatment, 4:2086
Nodular rashes, 3:1880
  See also Rashes
Nogier, Paul, 1:17, 186
Noise hazards, 2:1007*t*
Noise-induced hearing loss, 2:1007*t*, 1008, 1009
Non-essential amino acids, 1:73, 74
Non-Hodgkin's lymphoma, 2:1073; 3:*1419*, 1419–1421
Non-insulin dependent diabetes. *See* Diabetes mellitus
Non-melanoma skin cancer, 4:2072, 2073
  See also Skin cancer
Non-nucleoside reverse transcriptase inhibitors, for AIDS, 1:37
Non-REM sleep, 2:1193
Non-small cell lung cancer, 3:1368, 1372
  See also Lung cancer
Non-steroidal anti-inflammatory drugs (NSAIDs)
  Alzheimer's disease, 1:69
  ankylosing spondylitis, 1:97
  bruises and, 1:342
  bunions, 1:358
  chronic fatigue syndrome, 1:534
  dysmenorrhea, 2:730
  gastritis from, 2:900, 901, 903, 904
  gout, 2:957
  hangovers, 2:989
  headaches, 2:1005
  juvenile rheumatoid arthritis, 2:1253
  knee pain, 2:1283
  menstruation disorders, 3:1483
  migraine, 3:1500
  neck pain, 3:1586
  osteoarthritis, 3:1657
  overview, 1:106
  peptic ulcers and, 4:2283, 2287
  peripheral neuropathy, 3:1734
  psoriasis, 3:1837
  rheumatoid arthritis, 3:1927
  sciatica, 4:2002
  shin splints, 4:2055
  systemic lupus erythematosus, 4:2189
  tennis elbow, 4:2213
Nona. *See* Noni
Noncyclic breast pain, 2:837
Nonerosive *Helicobacter pylori* gastritis, 2:900–901, 902–904
  See also Gastritis
Noni, 2:1046; 3:**1604–1606,** *1605*
Nonprescription drugs
  caffeine as, 1:373–374
  common cold, 1:592
  gastroenteritis, 2:908
  herbal cold remedies, 2:1045–1048
  infections, 2:1176
  influenza, 2:1188
  insomnia, 2:1197
  motion sickness, 3:1521–1522
  peppermint in, 3:1730, 1731
  pseudephedrine in, 2:771
  sunburn, 4:2168
  weight loss aids, 3:1625
  yeast infections, 4:2404
Nonspecific dyspepsia, 4:2142
  See also Indigestion; Stomachaches
Nonsurgical root planing, for gum diseases, 2:978
Nonsyncope nonvertigo dizziness, 2:711, 712
  See also Dizziness
Nontreponemal antigen tests, for syphilis, 4:2183
Nontropical sprue. *See* Celiac disease
Nonu. *See* Noni
Nonulcer type indigestion, 2:1168; 4:2142, 2144
  See also Indigestion; Stomachaches
Nootropic drugs, for dyslexia, 2:727
Nopal cactus. *See* Prickly pear cactus
Norepinephrine serotonin reuptake inhibitors (NSRIs), 2:1111
Norpseudephedrine, 2:770
North American Riding for the Handicapped (NARHA), 3:1527
North American Society of Homeopaths, 2:1088, 1092, 1096
North American Vegetarian Society (NAVS), 4:2319, 2329
Northern water plantain. *See* Alisma
NOSB (National Organic Standards Board), 3:1642
Nosebleed (common name). *See* Yarrow
Nosebleeds, 3:**1606–1608,** *1607*
  Chinese skullcap for, 4:2076
  ferrum phosphoricum for, 2:828
  gardenia for, 2:894
  homeopathy for, 2:1090
  horsetail for, 2:1107
  ipecac for, 2:1207
  lachesis for, 3:1300
  lycium fruit for, 3:1376
  lycopus for, 3:1383
  nettle for, 3:1592
  notoginseng for, 3:1608
  periwinkle for, 3:1736
  rhubarb for, 3:1934
  scallion for, 4:1984
  witch hazel for, 4:2389
  yarrow, 4:2401
Nosocomial infections
  staphylococcal infections, 4:2134, 2135
  yeast infections, 4:2405
Nosodes, 4:2184
Notoginseng root, 3:*1608*, **1608–1610**
Nova Southeastern University, 2:1172

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Novartis AG, 4:2094
Novato Institute fro Somatic Research and Training, 4:2104
Novocain, in neural therapy, 3:1593–1594
Noz moscada. *See* Nutmeg
NPLEX (Naturopathic Physicians Licensing Examination), 3:1581
NRC (Nuclear Regulatory Commission), 3:1874
NSAIDs. *See* Non-steroidal anti-inflammatory drugs
NSF (National Sleep Foundation), 2:1193, 1194
NSRIs (norepinephrine serotonin reuptake inhibitors), 2:1111
NTP (National Toxicology Program), 1:287; 4:2232
Nuad bo-Rarn. *See* Thai massage
Nuclear accidents, radiation injuries and, 3:1874
Nuclear Regulatory Commission (NRC), 3:1874
Nucleic acid amplification testing
  chlamydia, 1:513–514
  gonorrhea, 2:950
  tuberculosis, 4:2276
Nucleoside reverse transcriptase inhibitors, for AIDS, 1:37
Nuez moscada. *See* Nutmeg
Nummular dermatitis
  eczema and, 2:742
  overview, 2:673, 674
Nurse-midwives, 1:485
Nurses, psychiatric, 3:1849
Nurses' Health Study, 1:379
Nursing. *See* Breast-feeding
Nursing care
  Alzheimer's disease, 1:68
  Lou Gehrig's disease, 3:1362
Nutgrass. *See* Cyperus
Nutmeg, 3:*1610*, **1610–1611**
  laryngitis, 3:1309
  sleep disorders, 4:2085
  vomiting, 4:2358
Nutraceuticals. *See* Functional foods
Nutrient absorption. *See* Absorption of nutrients
Nutrition, 3:**1612–1615**, 1612*t*
  children, 1:486–495, 487*t*, 488*t*, 489*t*
  seniors, 4:2013–2018, 2013*t*, 2014*t*
  teens, 4:2199–2204, 2199*t*
  See also Diet
Nutrition and Cancer (journal), 2:1266
Nutrition Journal, 2:874
Nutritional cirrhosis, 1:545
  See also Cirrhosis
Nutritional Labeling and Health Education Act of 1995, 2:874
Nutritional supplements, 2:988; 3:1333–1334
  ADHD, 1:176–177
  adolescents, 4:2203
  aging, 1:29–30
  AIDS, 1:36
  alfalfa, 1:50
  Alzheimer's disease, 1:67
  amino acids, 1:74–76
  angina, 1:91
  with Atkins diet, 1:171
  barley, 1:204–205
  beta carotene, 1:227, 229
  blood clots, 1:292
  boils, 1:303
  bulimia nervosa, 1:353
  calcium, 1:380
  carotenoids, 1:405–406
  Cayce systems and, 1:424
  cerebral palsy, 1:443
  cervical dysplasia, 1:451
  chickenpox, 1:478
  children, 1:492–493
  chills, 1:496
  chronic fatigue syndrome, 1:532–533
  cirrhosis, 1:547
  cold sores, 1:563
  colitis, 1:570–571
  conjunctivitis, 1:594
  cough, 1:618
  dementia, 2:665
  dermatitis, 2:674
  diabetes, 2:688
  diarrhea, 2:697
  dizziness, 2:713
  dysbiosis, 2:724
  ear infections, 2:735
  earaches, 2:737
  eczema, 2:743
  emphysema, 2:756
  endometriosis, 2:759
  fractures, 2:864
  fructooligosaccharides, 2:874–875
  fungal infections, 2:877
  gastritis, 2:902
  genital herpes, 2:911
  genital warts, 2:914
  glaucoma, 2:933
  gonorrhea, 2:950
  gout, 2:957
  Gulf War syndrome, 2:975
  gum diseases, 2:977–978
  hair loss, 2:984
  halitosis, 2:985
  hay fever, 1:55; 2:998
  headaches, 2:1004
  hearing loss, 2:1009
  heart attacks, 2:1012
  heart disease, 2:1018
  heavy metal poisoning, 2:1027
  hives, 2:1072
  hypercortisolemia, 2:1125
  hyperopia, 2:1127
  hypoglycemia, 2:1146
  hypothyroidism, 2:1150
  indigestion, 2:1169
  infections, 2:1176
  infertility, 2:1180
  inflammatory bowel disease, 2:1185
  influenza, 2:1188, 1190
  ipriflavone and, 2:1211
  iron, 2:1216–1217
  ischemia, 2:1225
  jaundice, 2:1236
  juvenile rheumatoid arthritis, 2:1253
  in Kelley-Gonzalez diet, 2:1267
  kidney infections, 2:1274
  kidney stones, 2:1278
  knee pain, 2:1283
  laryngitis, 3:1309
  lead poisoning, 3:1318–1319
  learning disorders, 3:1322
  low back pain, 3:1365
  lung cancer, 3:1370–1371
  Lyme disease, 3:1386
  measles, 3:1447
  medium-chain triglycerides, 3:1457–1458
  memory loss, 3:1463
  Ménière's disease, 3:1467
  meningitis, 3:1472
  menopause, 3:1476
  menstruation disorders, 3:1482
  mercury poisoning, 3:1489
  migraine, 3:1500, 1501
  mononucleosis, 3:1514
  multiple sclerosis, 3:1543
  mumps, 3:1546
  muscle cramps, 3:1550
  myopia, 3:1555
  naturopathic medicine and, 3:1580–1581
  neuralgia, 3:1596
  night blindness, 3:1603, 1604
  Ornish diet and, 3:1647
  orthomolecular medicine and, 2:670–671
  osteoarthritis, 3:1656
  osteoporosis, 3:1665
  ovarian cancer, 3:1670
  ovarian cysts, 3:1676
  overdose, 3:1615
  overview, 3:1613
  pain, 3:1685
  pancreatitis, 3:1695
  panic disorders, 3:1698
  parasitic infections, 3:1705
  Parkinson's disease, 3:1708
  pelvic inflammatory disease, 3:1724
  peptic ulcers, 4:2285
  peripheral neuropathy, 3:1734
  phlebitis, 3:1740
  pleurisy, 3:1768
  pneumonia, 3:1772
  polycystic ovarian syndrome, 3:1779

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Nutritional supplements *(continued)*
pregnancy, 3:1798
premenstrual dysphoric disorder, 3:1483
premenstrual syndrome, 3:1805
prostate disorders, 1:26
radiation injuries, 3:1876
rashes, 3:1882
Raynaud's syndrome, 3:1887
restless leg syndrome, 3:1911
retinopathy, 3:1919
rheumatoid arthritis, 3:1926
rosacea, 3:1946
schizophrenia, 4:1998
seborrheic dermatitis, 2:674
senior nutrition and, 4:2016–2017
shingles, 4:2053
sinus infections, 4:2069
sleep disorders, 4:2085
smoking cessation, 4:2093
sore throat, 4:2106
sprains and strains, 4:2128
strokes, 4:2157
surgery, 4:2420–2421
systemic lupus erythematosus, 4:2188
temporomandibular joint syndrome, 4:2207
tinnitus, 4:2242
tonsillitis, 4:2245
trichomoniasis, 4:2268
tuberculosis, 4:2276
uterine cancer, 4:2299–2300
uterine fibroids, 4:2302
UTIs, 1:285
vaginitis, 4:2309
vegans, 4:2321
wheezing, 4:2372
whooping cough, 4:2380

Nutritional therapy. *See* Diet therapy

Nuts and seeds, 1:106, 204

Nutsedge. *See* Cyperus

Nux moschata. *See* Nutmeg

Nux vomica, 3:**1615–1618,** *1616*
common cold, 1:591
food poisoning, 2:861
gastroenteritis, 2:907
gastrointestinal gas, 2:899
halitosis, 2:985
hangovers, 2:988
hay fever, 1:55; 2:999
headaches, 2:1004
heartburn, 2:1023
in homeopathy, 2:1084*t*
impotence, 2:1165
indigestion, 2:1169
morning sickness, 3:1800
nausea, 2:1207; 3:1583
sinus infections, 4:2069
sleep disorders, 4:2085
sneezing, 4:2096
stomachaches, 4:2144
vomiting, 4:2358

NX-1207, for prostate enlargement, 3:1832

Nyctalopia. *See* Night blindness

Nyctanthes arbor tristis, for sciatica, 4:2002

Nyerges, Christopher, 3:1812

Nyipa sum, 4:2239–2240

O

Oak, 3:**1619–1621,** *1620*
as flower remedy, 1:198; 2:850*t*, 851
for rashes, 3:1882

Oasis of Hope, 2:1247

Oat, wild. *See* Wild oat

Oat cell lung cancer, 3:1368
See also Lung cancer

Oatmeal baths
dermatitis, 2:674
hives, 2:1072
itching, 2:1229
measles, 3:1446
overview, 4:2385
pityriasis rosea, 3:1760
prickly heat, 3:1809
psoriasis, 3:1837
rashes, 3:1882
shingles, 4:2053

Obesity, 3:**1621–1627,** 1621*t*, 1622*t*
in adolescents, 4:2200, 2201, 2202
atherosclerosis and, 1:166
cellulite and, 1:437, 438
in children, 1:488*t*, 489–490, 491
colorectal cancer and, 1:579
defined, 3:1621–1622
guggul for, 2:970
heart attacks and, 2:1011, 1014
heart disease and, 2:1017, 1020
high fiber diet for, 2:1067; 3:1613
ischemia and, 2:1224, 1226
kava kava for, 2:1260
kelp for, 2:1269
lacto-ovo vegetarianism for, 3:1302
low fat diet for, 3:1614
panchakarma for, 3:1689
polycystic ovarian syndrome and, 3:1777
qigong for, 3:1859
stevia for, 4:2138
tangerine peel for, 4:2196
urinary incontinence and, 4:2292
veganism for, 4:2319, 2320
vegetarianism for, 4:2326
See also Weight loss

Objective tinnitus, 4:2241

Observations on the Lycopus Virginicus (article), 3:1382

Obsessions
defined, 3:1627
Tourette syndrome and, 4:2248

Obsessive-compulsive disorder (OCD), 3:**1627–1630**
inositol for, 2:1192
schizophrenia and, 4:1995

Obstructions
Crohn's disease, 1:632, 633
diverticulitis, 2:709, 710
peptic ulcers, 4:2285
urinary incontinence, 4:2292

Obstructive sleep apnea, 4:2079–2080, 2081, 2082, 2083, 2096

Occipital neuralgia, 3:1595, 1596

Occlusive dressing patch tests, 1:601–602

Occupational factors
anorexia nervosa, 1:99
anxiety, 1:115
asthma, 1:153*t*
cadmium poisoning, 1:371, 372
cancer, 1:386
carpal tunnel syndrome, 1:407, 408
chemical poisoning, 1:469
chronic fatigue syndrome, 1:533
colorectal cancer, 1:579
contact dermatitis, 1:601
emphysema, 2:753–754, 756
hearing loss, 2:1008
heavy metal poisoning, 2:1028
lead poisoning, 3:1317, 1318
lung cancer, 3:1369
mercury poisoning, 3:1487
multiple chemical sensitivity, 3:1538
neck pain, 3:1584
neck pain and, 3:1585
pinched nerves, 3:1752, 1754
rabies, 3:1869
radiation injuries, 3:1873, 1874
red cedar-induced asthma, 3:1890
secondhand smoke, 4:2092
tinnitus, 4:2243

Occupational therapy, 4:2026

OCD. *See* Obsessive-compulsive disorder

OCT (optical coherence tomography), 2:933

Ocular rosacea, 3:1944–1945

ODI (optimum daily intake), defined, 1:462

Odors. *See* Body odor; Smell

Oenothera biennis. See Evening primrose oil

Office of Alternative Medicine
acupuncture, 1:19
energy medicine, 2:763
pranic healing, 3:1792
therapeutic touch, 4:2224
traditional Chinese medicine, 2:1044; 4:2258

Office of Dietary Supplements, 3:1475

Office of Technology Assessment (OTA), 2:1115, 1159; 3:1353

Office of Women's Health, 1:63

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Ofloxacin, for gonorrhea, 2:951
Ohio buckeye. *See* Horse chestnut
Ohio State University, 2:698, 962, 1117
Ohsawa, George, 3:1395
Oil infusions, defined, 1:318
Oil of Jesus, 4:2132
See also St. John's wort
Oil therapy, in panchakarma, 3:1689, 1690
Oils
in anti-inflammatory diet, 1:107
apricot seed, 1:129
carrier, 1:140, 318; 2:788
for cradle cap, 1:620
massage, 2:1172; 4:2173
in Shangri-la diet, 4:2039, 2040
sunflower seed, 1:536
See also Olive oil
Ointments
arnica, 1:136
calendula, 1:383
cayenne, 4:2052
defined, 1:318
nettle, 3:1593
red clover, 3:1892
See also Creams and lotions
Ojibwe people, 2:790, 800
Oka wasabi. *See* Wasabi
Okanagan-Colville people, horsetail use, 2:1106
Oklahoma City bombing of 1995, 3:1783
Old man's beard. *See* Usnea
Old man's pepper. *See* Yarrow
Old woman's broom. *See* Damiana
Oleander, common, cardiac glycosides from, 2:707
Olein, in apricot seed, 1:129
Oligofructose, 1:380, 482
Oligomenorrhea, 3:1481
Oligomeric proanthocyanidins (OPCs). *See* Proanthocyanidins
Olive flower essence, 1:198; 2:850*t*, 851
Olive oil
anti-inflammatory diet, 1:107
cradle cap, 1:620
gallstones, 2:881
jaundice, 2:1236
lice infestations, 3:1338
in Mediterranean diet, 3:1454–1455
in Shangri-la diet, 4:2039, 2040
Oliver, T. H., 3:1679
Omalizumab
allergies, 1:56
hay fever, 2:999
wheezing, 4:2372
Ombú. *See* Phytolacca
OME (otitis media with effusion), 2:731
Omega-3 fatty acids, 3:**1630–1634,** 1630*t*
in anti-inflammatory diet, 1:106
asthma, 1:156
in black currant seed oil, 1:274
in fish oil, 2:840–841
in flaxseed, 2:846
hearing loss, 2:1009
juvenile rheumatoid arthritis, 2:1253
lacto-ovo vegetarianism and, 3:1303
learning disorders, 3:1322
macular degeneration, 3:1402
in Mediterranean diet, 3:1454
memory loss, 3:1463
menstruation disorders, 3:1482
multiple sclerosis, 3:1543
omega-6 fatty acids and, 3:1630, 1635
ovarian cancer, 3:1670
ovarian cysts, 3:1676
overview, 2:784–785, 786
Parkinson's disease, 3:1708
pleurisy, 3:1768
radiation injuries, 3:1876
rosacea, 3:1946
seniors, 4:2017
smoking cessation, 4:2090*t*, 2093
systemic lupus erythematosus, 4:2188
veganism and, 4:2322
vegetarianism and, 4:2327
Omega-6 fatty acids, 3:**1634–1636,** 1634*t*
in black currant seed oil, 1:274
juvenile rheumatoid arthritis, 2:1253
omega-3 fatty acids and, 3:1630, 1635
overview, 2:784–785, 786
Parkinson's disease, 3:1708
radiation injuries, 3:1876
rosacea, 3:1946
See also Gamma-linolenic acid
Omega Institute, 3:1958
Omeprazole, for hiatal hernia, 2:1062
Oncologists, 1:390
Ondansetron
gastroenteritis, 2:908
motion sickness, 3:1522
nausea, 3:1583
One Answer to Cancer (Kelley), 2:1266
One Order of Huna International, 2:1118
Onion. *See Allium cepa*
Ono, Yoko, 3:1395
Ontario College of Naturopathic Medicine, 2:1088, 1092, 1096
Onychocryptosis. *See* Ingrown nails
Oophorectomy, 3:1672, 1677
Oophoritis, from mumps, 3:1546
OPCs (oligomeric proanthocyanidins). *See* Proanthocyanidins
Open-angle glaucoma, 2:932, 933
See also Glaucoma
Open fractures, defined, 2:863
See also Fractures
Open pasture foods, 3:1643
Open reduction surgery, 2:864–865
Operant conditioning, 1:218
Operation Cure, escharotic treatment and, 2:783
Ophiopogon, 3:**1636–1638,** *1637*
Opiate blockers, for autism, 1:190
Opioids. *See* Narcotics
Opisthotonos, 4:2215
Opportunistic infections, 1:34–35, 37, 583
Opthalmic solutions
conjunctivitis, 1:595
glaucoma, 2:933
lazy eye, 3:1315
Optical coherence tomography (OCT), 2:933
Optimum daily intake (ODI), defined, 1:462
Optokinetic motion sickness, 3:1520
See also Motion sickness
Optometric Extension Program Foundation, 1:217
Optometry
behavioral, 1:216–217
syntonic, 4:2178–2179
Opuntia species. *See* Prickly pear cactus
Oral appliances
sleep apnea, 4:2081
sleep disorders, 4:2097–2098
temporomandibular joint syndrome, 4:2207–2208
Oral cancer, 2:967–968; 4:2123
Oral candidiasis. *See* Thrush
Oral contraceptives
acne, 1:9
cervical dysplasia and, 1:450
menstruation disorders and, 3:1480, 1483
overview, 1:485–486
polycystic ovarian syndrome, 3:1778
Oral desensitization, 1:55
Oral galvanism, 2:1078
Oral glucose tolerance tests. *See* Glucose tolerance tests
Oral habits, temporomandibular joint syndrome and, 4:2206
Oral herpes. *See* Cold sores
Oral hygiene
canker sores and, 1:399
cinnamon for, 1:543
gelsemium and, 2:909
grapefruit seed extract for, 2:965

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Oral hygiene *(continued)*
gum diseases and, 2:976, 978, 979
halitosis and, 2:985, 986
morning sickness and, 3:1517
neem for, 3:1588
tea tree oil for, 4:2198
teething and, 4:2205
thyme for, 4:2236
toothache prevention and, 4:2247
usnea for, 4:2298
wasabi for, 4:2366
Oral irrigation devices, for bad breath, 2:986
Oral leukoplakia, spirulina and, 4:2123
Oral protrusive devices, for sleep apnea, 4:2081
Oral rehydration therapy. *See* Fluid therapy
Orange. *See* Neroli; Sweet orange
Orange (color), 1:184, 577, 578
Orange root. *See* Goldenseal
Orap (pimozide), for Tourette syndrome, 4:2250
Orchiectomy, 3:1827
Orchitis, 3:1545, 1546–1547
Oreganello. *See* Damiana
Oregano, 3:**1638–1641,** *1639*
athlete's foot, 1:168
cold sores, 1:563
dysbiosis, 2:724
food poisoning, 2:861
fungal infections, 2:877
jock itch, 2:1240
Oregon grape root. *See* Barberry
Orexin deficiency, narcolepsy and, 3:1563
Organ system (traditional Chinese medicine)
acupuncture, 1:17–18
Chinese food cures, 1:502
herbalism, 2:1043
qigong, 3:1860
traditional Chinese medicine, 4:2256
Organic Food Production Act of 1990, 3:1642
Organic foods, 3:**1642–1644,** 1642*t*
Gerson therapy and, 2:919
heavy metal poisoning, 2:1027
macrobiotic diet and, 3:1396
for memory loss, 3:1462
senior nutrition and, 4:2015
veganism and, 4:2320, 2322
Organic mercury compounds, 3:1486, 1488, 1489
Organon (Hahnemann), 2:1085
Orgasmic disorder, 4:2031
Oriental arborvitae. *See* Biota
Oriental ginseng. *See* Korean ginseng
Oriental medicine. *See* Traditional Chinese medicine (TCM)
Origanum vulgare. *See* Oregano
Origin and insertion treatment, 1:125
Orlistat, 3:1351, 1625
Ornish, Dean
high fiber diet, 2:993, 1067
lacto-ovo vegetarianism and, 3:1303
meditation and, 3:1451
Ornish diet, 3:1645, 1646, 1647
Ornish diet, 3:**1645–1648;** 4:2326, 2328
Ortho-bionomy, 3:**1648–1650**
Orthodox Union, 2:943
Orthomolecular medicine, 2:670–671; 3:**1650–1652**
Orthopedic braces
cerebral palsy, 1:444
ingrown nails, 2:1191
neck pain, 3:1586
osteoarthritis, 3:1657
scoliosis, 4:2005
Orthopedic surgery
herniated disks, 2:*1054,* 1057; 3:1366
scoliosis, 4:2005–2006
Orthoptics
Bates method, 1:160, 205–208
behavioral optometry, 1:216–217
lazy eye, 3:1314, 1315
myopia, 3:1556, 1916
syntonic optometry, 4:2178–2179
Orthostatic hypotension, hawthorn for, 2:996
Orthotics
bunions, 1:357, 358
heel spurs, 2:1029
low back pain, 3:1365
Orudis (ketoprofen), for osteoarthritis, 3:1657
Oscillococcinum, for influenza, 2:1188
Oseltamavir phosphate, for influenza, 2:1188, 1189
Osha, 3:**1652–1653**
cervical dysplasia, 1:451
laryngitis, 3:1308
pleurisy, 3:1768
sore throat, 4:2106
strep throat, 4:2148
tonsillitis, 4:2245
Osher Center for Integrative Medicine, 1:333
Ossicles
ear infections, 2:731, 733
hearing loss, 2:1007
Osteoarthritis, 3:**1653–1657,** *1654, 1655,* 1655*t*
ademetionine, 1:20, 21
apitherapy for, 1:120; 4:2331
bone spurs from, 1:308
chondroitin for, 1:410, 523–524
craniosacral therapy for, 1:627
Dead Sea bathing for, 4:2101
devil's claw for, 2:680
ginger for, 2:921, 922
glucosamine/chondroitin for, 2:935–936, 937; 3:1685
knee pain and, 2:1281
naturopathic medicine for, 3:1580
neck pain and, 3:1584, 1585, 1586, 1587
neem for, 3:1588
niacin for, 3:1600; 4:2338
oxygen therapy for, 3:1680
Rosen method for, 3:1953
selenium for, 4:2011
t'ai chi for, 4:2193
tea tree oil for, 4:2198
therapeutic touch for, 4:2224
tomatoes and, 3:1379
turmeric for, 4:2280
white willow for, 4:2376
yucca for, 4:2418
Osteogenesis, 3:1662–1663
Osteomalacia, 1:379; 4:2346
Osteomyelitis, 4:2134
Osteonecrosis, knee pain and, 2:1282
Osteopathic manipulation, 3:1658–1662; 4:2120–2122
Cayce systems and, 1:424
cerebral palsy, 1:443
chronic fatigue syndrome, 1:533
dizziness, 2:714
ear infections, 2:733
headaches, 2:1002*t,* 1004
herniated disks, 2:1056
Ménière's disease, 3:1466
pinched nerves, 3:1753
rheumatic fever, 3:1922
sciatica, 4:2002
tennis elbow, 4:2213
whooping cough, 4:2380
Osteopathic physicians, 3:1660, 1661–1662; 4:2121
Osteopathic Postdoctoral Training Institutions, 3:1662
Osteopathy, 3:**1657–1662,** *1658, 1659*
Osteoporosis, 3:**1662–1667,** 1663*t, 1664;* 4:2346
boron for, 1:312
calcium for, 1:305, 378, 379
cnidium seeds for, 1:552
copper and, 1:603, 604–605
fish oil for, 2:842
fractures and, 2:863, 865
gamma-linolenic acid for, 2:882
glucosamine for, 2:936
horsetail for, 2:1106
ipriflavone for, 2:1209–1211
lacto-ovo vegetarianism for, 3:1302
lycopene for, 1:405
lysine for, 3:1392
magnesium for, 3:1406
manganese for, 3:1422
menopause and, 3:1477–1478
Mexican yam for, 3:1495
MSM for, 3:1530

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

natural hormone replacement therapy for, 3:1570
neck pain and, 3:1584, 1585, 1586, 1587
psoralea seeds for, 3:1834
pyridoxine for, 3:1857
soy protein for, 4:2115
vanadium for, 4:2313, 2314
vegetarianism for, 4:2326
vitamin B12 for, 4:2336
vitamin K for, 4:2354
OTA. *See* Office of Technology Assessment
Otitis externa. *See* Swimmer's ear
Otitis media. *See* Ear infections
Otitis media with effusion (OME), 2:731, 734
Otosclerosis, 2:1007, 1009
Otoscopes, for ear infections, 2:732–733
Our Lady's milk thistle. *See* Milk thistle
Our Lady's mint. *See* Spearmint
Ova and parasite tests, 3:1704
Ovarian cancer, 3:**1667–1673,** *1668*
dong quai for, 2:718
HRT and, 3:1665
Ovarian cysts, 3:**1673–1678,** *1674,* 1777
Ovarian wedge resection, 3:1677
Over-care for the welfare of others (Bach flower essences), 1:199; 2:852
Over-sensitivity to influences and ideas (Bach flower essences), 1:198; 2:852
Over-the-counter drugs. *See* Nonprescription drugs
Overdose
activated charcoal for, 1:457
belladonna, 1:223
blue cohosh, 1:299
iron, 2:1217
juniper, 2:1250
lobelia, 3:1355
methionine for, 3:1493
nutmeg, 3:1611
nutritional supplements, 3:1615
potassium, 3:1789–1790
rhubarb, 3:1935
rosemary, 3:1951
substance abuse and, 4:2161
vitamin A, 4:2334
vitamin C, 4:2345
vitamin D, 1:493; 4:2348
vitamin E, 4:2352
zinc, 4:2422
Overeating, Shangri-la diet and, 4:2038, 2039, 2040
See also Binge eating disorder; Obesity
Overflow incontinence, 4:2290, 2291*t*
See also Urinary incontinence
Overtoning (sound therapy), 4:2110
Overweight. *See* Obesity
Ovulation
amenorrhea, 1:71
infertility, 2:1178, 1179, 1181
menopause, 3:1474
menorrhagia, 3:1480
menstruation, 3:1479
ovarian cysts, 3:1674
saliva sampling, 4:1972, 1973, 1974
Ox-eye daisy, 1:536, 537
Oxalate, kidney stones and, 2:1276, 1278
Oxalic acid, in sheep sorrel, 4:2042, 2043
Oxazolidinone antibiotics, for pneumonia, 3:1772
Oxygen deprivation, memory loss and, 3:1461
Oxygen Healing Therapies (Altman), 4:2309
Oxygen/ozone therapy, 3:*1678,* **1678–1681**
cerebral palsy, 1:443
emphysema, 2:756
frostbite, 2:873
heart attacks, 2:1012
See also Hyperbaric oxygen therapy
Oxytocin, 1:483
Ozone, 3:1678, 1679, 1680

P

Paak sat. *See* Atractylodes
PAAM (Physicians Association for Anthroposophic Medicine), 1:104
PABA (para-aminobenzoic acid), in wheat germ, 4:2368
Pace, Norman R., 2:722
Pacemaker-like devices, for depression, 2:672
Pacific Academy of Homeopathic Medicine, 2:1088, 1092, 1096
Pacifiers, ear infections and, 2:735
Paclitaxel, 2:1259; 3:1671
Padasevana bhakti, 1:236
Paddock-pipes. *See* Horsetail
Paeonia alba. See White peony root
Pain, 3:**1683–1687**
angina, 1:89, 90
bone spurs, 1:308
Crohn's disease, 1:633
fibromyalgia, 2:839
frostbite, 2:872, 873
kidney stones, 2:1277, 1278
migraine, 3:1499–1500
pancreatitis, 3:1693
pinched nerves, 3:1752–1753
pleurisy, 3:1767, 1768
sciatica, 4:2001
temporomandibular joint syndrome, 4:2206, 2207
See also specific types of pain
Pain & Central Nervous System Week, 4:2247
Pain Erasure (Prudden), 3:1559
Pain management
art therapy for, 1:146
of bone spurs, 1:309
craniosacral therapy for, 1:627
diathermy for, 2:699
electroacupuncture for, 2:749
facial massage for, 2:809, 811
Feldenkrais method for, 2:819–820
geriatric massage for, 2:917
guided imagery for, 2:972
hypnotherapy for, 2:1141, 1142; 3:1508
of low back pain, 3:1366
magnetic therapy for, 3:1408
massage therapy for, 3:1440, 1441
meditation for, 3:1449, 1451
myotherapy for, 3:1557–1559
neural therapy for, 3:1593–1594
ortho-bionomy for, 3:1649
of peripheral neuropathy, 3:1734–1735
pregnancy massage for, 3:1802
reiki for, 3:1900
of rheumatoid arthritis, 3:1926–1927
Rolfing for, 3:1941
Rosen method for, 3:1952
Rubenfeld synergy method for, 3:1958
of sciatica, 4:2002
shiatsu for, 4:2046, 2047
of sickle cell anemia, 4:2065
Swedish massage for, 4:2172
therapeutic touch for, 4:2222, 2223
trigger point therapy for, 4:2269–2271
yoga for, 2:804
See also Analgesics
Pain-relief tea, 3:1685
Pain relievers. *See* Analgesics
Painful bladder syndrome. *See* Interstitial cystitis
Painful crises, sickle cell anemia and, 4:2063, 2065, 2421
Painful urination. *See* Urination, painful
Painless ulcers, 4:2283
Paint, lead-based, 3:1316, 1371
Palatal stiffening, for snoring, 4:2098
Paleolithic diet, 3:**1687–1688**
Palliative Medicine, 3:1428
Pallidotomy, 3:1709–1710; 4:2263
Palmar-plantar pustulosis, 3:1836
Palmar warts, 4:2361, *2362*
Palmarosa, for worms, 4:2393
Palmer, B. J., 1:508, 511

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Palmer, Daniel D., 1:507–508, 511; 4:2121
Palming (Bates method), 1:206–207
Panax ginseng. *See* Korean ginseng
Panax notoginseng. *See* Notoginseng root
Panax pseudoginseng. *See* Notoginseng root
Panax quinquefolius. *See* American ginseng
Pancarditis, from rheumatic fever, 3:1921–1922, 1924
Panchakarma, 3:**1689–1692**
  heavy metal poisoning, 2:1027
  ovarian cancer, 3:1670
  overview, 1:194
Pancreas disorders
  indigestion and, 2:1168
  lipase and, 3:1350
  uva ursi for, 4:2305
Pancreas transplantation, 2:690
Pancreatic abscesses, 3:1694, 1695
Pancreatic cancer
  immuno-augmentation therapy and, 2:1160
  Kelley-Gonzalez diet for, 2:1267
  lycopene for, 3:1378
  quercetin for, 3:1866
Pancreatic enzymes. *See* Digestive enzymes
Pancreatic insufficiency
  chymotrypsin for, 1:538
  lipase for, 3:1350, 1351
  medium-chain triglycerides for, 3:1457
Pancreatic pseudocysts, 3:1694, 1695
Pancreatin
  lipase supplements and, 1:431
  overview, 2:704
  rheumatoid arthritis, 3:1926
Pancreatitis, 3:**1692–1696**
  defined, 1:538
  methionine for, 3:1494
Pandemics, of influenza, 2:1186; 3:1356
Panic disorders, 3:**1696–1699**
  agoraphobia and, 3:1742, 1743
  arsenicum album for, 1:144
  inositol for, 2:1192
  meditation for, 3:1449
  schizophrenia and, 4:1995
Panretinal photocoagulation, 3:1919
Pansy
  impetigo, 2:1163
  rashes, 3:1881
  whooping cough, 4:2379
Pantethine
  ischemia, 2:1225
  overview, 3:1700
Pantothenic acid, 3:**1699–1702,** 1700*t*
  osteoarthritis, 3:1656
  premenstrual syndrome, 3:1805
  radiation injuries, 3:1876
  in wheat germ, 4:2368
Pantothenic acid deficiency, 3:1700
Pap smears
  cervical diseases, 1:450, 451; 4:2298, 2299, 2300
  chlamydia screening, 1:513
Papain compresses, 1:261
Papaya extract
  BHAs in, 1:232
  for digestion, 2:705
  itching, 2:1229
Papillomavirus. *See* Human papillomavirus
Papoose root. *See* Blue cohosh
Papular rashes, 3:1880
  See also Rashes
Papules, 1:6
Para-aminobenzoic acid (PABA), in wheat germ, 4:2368
Para todo. *See* Suma
Paracelsus
  biological cancer treatment, 1:394
  bitters, 1:265
  cell therapy, 1:434, 435
  cures from nature, 1:103
  energy medicine, 2:761
  fasting, 2:812
  flower remedies and, 2:849
  herbal medicine and, 2:1050
Paradise Lost (Milton), 2:807
Paralysis, homeopathy for, 2:1094
Paramyovirus, 3:1445, 1545
Paranoia, music therapy for, 3:1552
Paranoid schizophrenia, 4:1992
Parapharyngeal abscesses, 1:1
Parasitic infections, 3:**1702–1706**
  arka for, 1:133
  chymotrypsin for, 1:539
  diarrhea from, 2:696
  evodia fruit for, 2:801
  grapefruit seed extract for, 2:966
  indigestion and, 2:1168
  neem for, 3:1588
  noni for, 3:1605, 1606
  oregano for, 3:1639
  pau d'arco for, 3:1720
  psoralea seeds for, 3:1834
  ruta for, 3:1961
  scallion for, 4:1984
Parasitic worms. *See* Worms
Parasomnias, 4:2083–2084
Parathyroid hormone
  hyperparathyroidism, 2:1128
  phosphorus, 3:1745, 1747
Parathyroidectomy, 2:1130
Parenting factors. *See* Family factors
Paresthesias, 2:975; 3:1542, 1752
Parijat, for sciatica, 4:2002
Park, E. H., 3:1812
Parkinson, James, 3:1706
Parkinson, John, 2:833
Parkinsonism, 3:1707–1708
Parkinson's disease, 3:**1706–1711,** *1707*
  ademetionine for, 3:1493
  belladonna for, 1:222
  corydalis for, 1:615
  geriatric massage for, 2:917, 918
  glutathione for, 2:940
  manganese and, 3:1424
  meditation for, 3:1449
  neurolinguistic programming for, 3:1598
  passionflower for, 3:1715
  phobias and, 3:1744
  royal jelly for, 3:1954
  Trager psychophysical integration for, 4:2259
  tremors and, 4:2261, 2263–2264
  vitamin E for, 4:2350
Parotitis. *See* Mumps
Paroxetine
  hot flashes, 2:1111
  newborn jaundice and, 2:1237
  obsessive-compulsive disorder, 3:1629
  phobias, 3:1744
  premenstrual syndrome, 3:1807
Paroxysmal stage of whooping cough, 4:2378–2379
Parsley, 3:**1711–1714,** *1712*
  anemia, 1:85
  halitosis, 2:985
  iron in, 2:1216
Partial seizures, 2:776
Partially hydrogenated oils, 2:786–787
Particular symptoms (homeopathy), 2:1090, 1094
Particulate radiation, 3:1872
Partridge berry. *See* Squawvine; Wintergreen
Parturition. *See* Childbirth
Paschata karma, 3:1690
Pasque flower. *See* Pulsatilla
Passerina. *See* Chickweed
Passiflora incarnata. *See* Passionflower
Passionflower, 3:**1714–1716,** *1715*
  asthma, 1:156
  headaches, 2:1004
  insomnia, 2:1196
  low back pain, 3:1365
  menopause, 3:1475
  migraine, 3:1500
  night blindness, 3:1603
  panic disorders, 3:1698
  shingles, 4:2052
  sleep disorders, 4:2085
  wheezing, 4:2372
Passive smoking. *See* Secondhand smoke
Past life therapy, 3:**1717–1719**

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Pasteur, Louis, 2:895, 1085
Pasteur Institute, 2:965
Pastorata. *See* Damiana
Patanjali, 1:330; 3:1791; 4:2414
Patch Adams (film), 2:1116
Patch tests. *See* Skin patch tests
Patchak. *See* Aucklandia
Patches, for lazy eye, 3:1314–1315
Patchouli, for infections, 2:1176
Patellofemoral pain, 2:1282
Pathologic myopia. *See* Myopia
Pathological hypercortisolemia, 2:1124–1125
Patient compliance. *See* Compliance with therapy
Patient education
  alcoholism, 1:45
  asthma, 1:158
  boils, 1:303
  cancer treatment, 1:388, 396
  homeopathy, 2:1095
  osteoarthritis, 3:1656
  practitioner choice, 2:1081
  substance abuse, 4:2158
  sun safety, 3:1873
  sunburn, 4:2168–2169
  syphilis, 4:2186
  temporomandibular joint syndrome, 4:2207
Patient interviews. *See* Case-taking
Pau d'arco, 3:*1719*, **1719–1720**
  athlete's foot, 1:168
  fungal infections, 2:877
  systemic lupus erythematosus, 4:2188
  vaginitis, 4:2309
Pauciarticular juvenile rheumatoid arthritis, 2:1252, 1254
Paucon. *See* Bloodroot
Pauling, Linus
  biological cancer treatment, 1:395–396
  orthomolecular medicine, 3:1650, 1651
  vitamin C, 1:110
Pauls, Arthur Lincoln, 3:1648
Pavlov, Ivan Petrovich, 3:1847–1848
Paw paw, for lice infestations, 3:1338
Paxil. *See* Paroxetine
PCOS. *See* Polycystic ovarian syndrome
PCOs. *See* Proanthocyanidins
PCP (*Pneumocystis carinii* pneumonia), 1:34
PCR tests. *See* Polymerase chain reaction (PCR) tests
PDGFs (platelet-derived growth factors), in colostrum, 1:583
The PDR Family Guide to Natural Medicines and Healing Therapies, 1:529
Peak flow meters, 1:155, 158
Peak X, in 5-HTP supplements, 2:844–845
Peculiar symptoms (homeopathy), 2:1090, 1094
Pedanius Dioscorides. *See* Dioscorides, Pedanius
Pediculicides, 3:1338, 1339–1340
Pediculosis. *See* Lice infestations
Pei Lan. *See* Eupatorium
Pelargonium odoratissimum, for knee pain, 2:1283
Pellagra, 3:1600–1601; 4:2339
Pelletier, P. S., 1:560
Pellitory, 1:535
Pelvic adhesions, infertility and, 2:1179, 1181
Pelvic examinations
  cancer, 1:387
  menstruation disorders, 3:1481
  ovarian cysts, 3:1675
  pelvic inflammatory disease, 3:1723–1724
Pelvic inflammatory disease (PID), 3:**1720–1725**, 1721*t*, *1722*
  chlamydia and, 1:512, 514
  douches and, 2:1123
  goldenseal for, 2:948
  gonorrhea and, 2:951
  infertility and, 2:1178
Pelvic peritonitis, 3:1721
Pen Ts'ao (Chinese text). *See Bencao gangmu*
Penciclovir, for cold sores, 1:564
Pendleton, James M., 3:1382
Penfold, Arthur, 4:2197
Penicillamine, for heavy metal poisoning, 2:1027; 3:1319
Penicillin
  gonorrhea, 2:950–951
  rheumatic fever, 3:1922–1923
  scarlet fever, 4:1988
  sickle cell anemia, 4:2065
  sore throat, 4:2106
  staphylococcal infections, 4:2137
  strep throat, 4:2149
  syphilis, 4:2184, 2185
  tonsillitis, 4:2245
Penile implants, 2:1165, 1166
Penn State Hershey Medical Center, 2:853
Pennies, cooking prickly pear cactus with, 3:1812
Pennyroyal, 3:*1726*, **1726–1728**
  as insect repellent, 2:1230
  for lice infestations, 3:1338
  for rashes, 3:1882
Pennywort. *See* Gotu kola
Penobscot people, cramp bark and, 1:622
Pentosan polysulfate, for interstitial cystitis, 2:1202
Peony. *See* Red peony; White peony root
People Against Cancer, 1:396; 2:1159
Pepcid (famotidine), for indigestion, 2:1170
Peper, Erik, 1:156
Pepper-and-salt. *See* Shepherd's purse
Peppermint, 3:**1728–1732**, *1729*, *1730*
  alcoholism, 1:44
  aromatherapy uses, 1:137*t*, 139
  athlete's foot, 1:169
  canker sores, 1:398
  chickenpox, 1:478
  colic, 1:568
  contact dermatitis, 1:602
  Crohn's disease, 1:633
  digestion, 2:704
  eczema, 2:743
  fatigue, 2:816
  fever, 2:832
  fractures, 2:864
  fungal infections, 2:877
  gastrointestinal gas, 2:899
  halitosis, 2:985
  headaches, 2:1004
  heartburn, 2:1023
  in hydrotherapy, 2:1122
  indigestion, 2:1169
  irritable bowel syndrome, 2:1220
  jock itch, 2:1240
  knee pain, 2:1283
  laryngitis, 3:1308, 1309
  measles, 3:1446
  menstruation disorders, 3:1482
  nausea, 3:1583
  pleurisy, 3:1768
  pregnancy, 3:1799
  premenstrual syndrome, 3:1805
  rubella, 3:1956
  shingles, 4:2052
  snoring, 4:2098
  stomachaches, 4:2144
  vomiting, 4:2359
  whooping cough, 4:2380
Peptic ulcers, 4:**2283–2287**, *2284*
  aloe for, 1:61
  chamomile for, 1:455
  goldenseal for, 2:948
  Helicobacter pylori infections and, 2:900, 901, 921
  indigestion and, 2:1168
  juice therapy for, 2:1247
  licorice for, 3:1342
  magnesium for, 3:1405
  manuka honey for, 3:1429
  marsh mallow for, 3:1435
  See also Stomach ulcers
Pepto-Bismol. *See* Bismuth subsalicylate
Percussive strokes, in sports massage, 4:2126
Percutaneous transluminal coronary angioplasty. *See* Balloon angioplasty

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Perforations
Crohn's disease, 1:632
diverticulitis, 2:709, 710
inflammatory bowel disease, 2:1183
peptic ulcers, 4:2284
Performance enhancing agents
caffeine, 1:373
colostrum, 1:584
creatine, 1:628–630
ephedra, 2:771
eucalyptus, 2:794
ginkgo for, 2:922
glutathione for, 2:940
Korean ginseng, 2:928
Korean ginseng for, 2:927
peppermint, 3:1731
resveratrol, 3:1914
rhodiola rosea, 3:1930, 1931
Siberian ginseng, 2:930
suma, 4:2165
theanine, 4:2220, 2221
vanadium, 4:2313, 2314
Pergonal, for infertility, 2:1181; 4:2295
Pericarditis, 1:560; 4:2187
Pericarpium Citri Reticulatae. *See* Tangerine peel
Pericarpium phaseoli munginis, for prickly heat, 3:1809
Perilla frutescens, 1:174
Perimenopause, 3:1473, 1474, 1573
Perineal stimulation, for urinary incontinence, 4:2293
Perineometers, 2:1263–1264, 1265
Perinephric abscesses, 2:1272, 1274
Periodic limb movements of sleep. *See* Nocturnal myoclonus
Periodontal diseases. *See* Gum diseases
Periodontitis
defined, 2:976, *977*
echinacea for, 2:739
manuka honey for, 3:1428
Periostracum cicadae. See Cicada
Peripheral acting adrenergic antagonists, 2:1134
Peripheral neuropathy, 1:253, 528; 3:**1732–1735**
Peripheral stem cell transplantation, 3:1420
Periploca of the woods. *See* Gymnema
Peristalsis
bitters, 1:267
irritable bowel syndrome, 2:1219
MSM, 3:1531
Peritonitis
diverticulitis, 2:709, 710
inflammatory bowel disease, 2:1183
Peritonsillar abscesses, 1:1
Periwinkle, 3:*1735,* **1735–1737**
Perls, Frederick ("Fritz"), 3:1845, 1941, 1958
Perls, Laura, 3:1958
Permanent press acupuncture needles, 1:186–187
Permethrin, 3:1417, 1418; 4:1982
Pernicious anemia, 1:83, 86; 4:2336, 2337, 2339
Persely. *See* Parsley
Perseveration, Alzheimer's disease and, 1:66
Persian berries. *See* Buckthorn
Persian Gulf Registry (Veterans Administration), 2:975
Persistent generalized lymphadenopathy (PGL), 1:34
Personal fulfillment, art therapy and, 1:146
Personality, Freudian view, 3:1847
Personality disorders, music therapy for, 3:1552
Personality tests, art therapy and, 1:145
Personality types
arsenicum album and, 1:144
Ayurvedic medicine view, 1:193, 193*t*
hangovers and, 2:987
kali bichromium and, 2:1255–1256
lachesis and, 3:1299
ledum and, 3:1325
lycopodium and, 3:1380–1381
mercurius vivus and, 3:1485
mind/body medicine and, 3:1505
natrum muriaticum and, 3:1568
nux vomica and, 3:1616–1617
prakriti and, 1:192, 578
pulsatilla and, 3:1853
rhus toxicodendron and, 3:1936
ruta and, 3:1961
sepia and, 4:2027–2028
silica and, 4:2067
sulfur and, 4:2163
type A/B/C personalities, 3:1505
Personata. *See* Burdock root
Perspiration
belladonna for, 1:221
body odor and, 1:300–301
fever and, 2:830, 832
hangovers and, 2:988
lemongrass for, 3:1329
lycium fruit for, 3:1376
prickly heat and, 3:1808–1809
scallion and, 4:1984
Perthes' disease, manganese for, 3:1423
Pertussis. *See* Whooping cough
Pesticides
in fruits and vegetables, 3:1642*t*
Gerson therapy and, 2:919
jojoba oil as, 2:1242
for organic foods, 3:1643
veganism and, 4:2320, 2322
vegetarianism and, 4:2329
Pet Partners Program, 3:1739
PET scans. *See* Positron emission tomography
Pet therapy, 3:**1737–1739,** *1738;* 4:2152
Petadolex, for headaches, 2:1004; 3:1501
Petechia, 1:341
See also Bruises
Petersylinge. *See* Parsley
Petrissage
Russian massage, 3:1959
sports massage, 4:2126
Swedish massage, 4:2173
Petroleum (homeopathic remedy), 2:714; 3:1521
Petroleum jelly, for lice infestations, 3:1338
Petroselinum species. *See* Parsley
Pets
diabetes service dogs, 2:688
rabies and, 3:1870, 1871
vegetarianism and, 4:2329–2330
yucca for, 4:2418
See also Pet therapy
Pettigree. *See* Butcher's broom
Pewterwort. *See* Horsetail
Pfaffia paniculata. See Suma
Pfizer Laboratories, 2:1099; 4:2234
PGL (persistent generalized lymphadenopathy), 1:34
Phantom limb pain, 3:1684
Pharmaceutical Research (journal), 4:1964
Pharmacognosy, 1:315; 2:1048
Pharmacology (journal), 4:2019
Pharmanex, 3:1893, 1894
Pharyngeal gonorrhea, 4:2105
Pharyngitis. *See* Sore throat
Phased reflex techniques (orthobionomy), 3:1648
Phellodendron wilsonii
cirrhosis, 1:548
jaundice, 2:1236
Lyme disease, 3:1386
Phenobarbitol, 2:778, 1065
Phenol drugs, for cold sores, 1:564
Phenylalanine, 1:74
Phenylpropanolamine, for weight loss, 3:1625
Phenytoin, 2:778; 3:1550
Philanthropium. *See* Burdock root
Philodendron, 2:774; 3:1929
Phlebitis, 3:**1739–1741**
horse chestnut for, 2:1105
mesoglycan for, 3:1490
Phlebothrombosis. *See* Phlebitis
Phlegm, as humor in unani-tibbi, 4:2289

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Phobias, 3:**1741–1745**
anxiety and, 1:115
homeopathy for, 2:1094
hypnotherapy for, 2:1141
neurolinguistic programming for, 3:1598
obsessive-compulsive disorder and, 3:1628
Phonemic synthesis (PS), 1:180
Phonetic decoding, 1:180
Phonics, auditory integration training and, 1:180
Phoradendron leucarpum. See Mistletoe
Phosphates, in bonemeal, 1:305
Phosphatidylserine, for memory loss, 3:1463
Phosphorus, 3:**1745–1747**
in bonemeal, 1:304, 305
in brewer's yeast, 1:336
childhood nutrition and, 1:490
in homeopathy, 1:340; 2:1084*t*
hyperparathyroidism and, 2:1130
as major mineral, 1:462
menopause and, 3:1476
morning sickness, 3:1800
vomiting, 4:2358
in wheat germ, 4:2368
Phosphotidylserine, for dementia, 2:665
Photochemotherapy, for psoriasis, 3:1837
Photography
Kirlian, 1:182; 2:*1279*, 1279–1281, *1280*
skin cancer diagnosis, 4:2074
Photoreceptors, night blindness and, 3:1602
Photorefractive keratectomy (PRK), 1:160; 3:1556
Photosensitizing compounds
AHAs, 1:63
angelica, 1:88
BHAs, 1:232
essential oils, 1:140, 320; 2:789
khella, 2:1271
parsley, 3:1713
psoralea seeds for, 3:1834
St. John's wort, 4:2133
Phototherapy. *See* Light therapy
Phu. *See* Valerian
The Physical Anatomy of Man (Stone), 3:1776
Physical body (anthroposophical medicine), 1:103
Physical examinations
cancer diagnosis, 1:387
scoliosis, 4:2005
See also Digital rectal examinations
Physical postures
hatha yoga, 2:992, 994; 4:2412–2413
qigong, 3:1861
t'ai chi, 4:2192, *2192*
yoga, 2:804; 4:2409, 2410*t*, 2411*t*, 2412–2413
Physical therapy
cerebral palsy, 1:444
chronic fatigue syndrome, 1:533
heel spurs, 2:1029
holistic dentistry and, 2:1078
juvenile rheumatoid arthritis, 2:1253
Lou Gehrig's disease, 3:1361
low back pain, 3:1366
music therapy and, 3:1551
osteoarthritis, 3:1656
Parkinson's disease, 3:1708
phlebitis, 3:1740
pinched nerves, 3:1754
rheumatoid arthritis, 3:1927
sciatica, 4:2002
sprains and strains, 4:2128
strokes, 4:2156
yoga as, 2:993
PhysicalMind Institute, 3:1751
Physicians
acupuncture practice, 1:16, 18, 19, 187
anthroposophical, 1:103, 104
vs. osteopaths, 3:1661–1662
specialists in cancer treatment, 1:390
Physicians Association for Anthroposophic Medicine (PAAM), 1:104
Physicians Committee for Responsible Medicine, 1:172
Physicians' Desk Reference, 1:225
Physicians' Desk Reference for Herbal Medicines
belladonna, 1:222
chickweed, 1:480
cornsilk, 1:612
cotton root bark, 1:616, 617
dandelion, 2:659
devil's claw, 2:682
feverfew, 2:835
marijuana, 3:1433
Mexican yam, 3:1497
mistletoe, 3:1511, 1512
oregano, 3:1639
parsley, 3:1713
pennyroyal, 3:1727
rosemary, 3:1951
thyme, 4:2238
wild oat, 4:2385
Physicians' Health Study, 1:110; 3:1631
Physiologic myopia. *See* Myopia
Physiologic nodularity. *See* Fibrocystic breast disease
Phytic acid. *See* Inositol
Phytin, phosphorus and, 3:1746
Phytoandrogens, 3:1574
Phytoestrogens
Alzheimer's disease, 1:67
cervical dysplasia, 1:451
in flaxseed, 2:846
in hops, 2:1100
leukemia, 3:1334
lung cancer, 3:1371
menopause, 3:1475
menstruation disorders, 3:1482
natural hormone replacement therapy and, 3:1572, 1573–1574
premenstrual syndrome, 3:1805
resveratrol, 2:964
in soy protein, 4:2115
Phytolacca, 3:**1747–1749**
in Hoxsey formula, 2:1114, 1115
laryngitis, 3:1308
mumps, 3:1546
rubella, 3:1956
sinus infections, 4:2069
sore throat, 4:2106
syphilis, 4:2184, 2185
tonsillitis, 4:2245
Phytomedicinals. *See* Herbal medicine
Phytomedicine (journal), 2:996
Phytomedics, Inc., 4:2234
Phytopharm, Plc, 2:1099
Phytosterols, 1:24–25
Pi Pa Ye, for vomiting, 4:2358
Pick, Marcelle, 2:723
Pick-pocket. *See* Shepherd's purse
Pickwickian syndrome, 4:2080
PID. *See* Pelvic inflammatory disease
Pien, for seniors, 4:2017
Pieplant. *See* Rhubarb root
Pigeon berry. *See* Phytolacca
Pigment cirrhosis, 1:545
See also Cirrhosis
Pigmentation, skin. *See* Skin discoloration
Pigments
black walnut oil, 1:279
buckthorn, 1:349
Pilates, 3:1526, **1749–1751**
Pilates, Joseph, 3:1749–1750
Pilates Studio, 3:1750, 1751
Piles. *See* Hemorrhoids
Pilgrimages
labyrinths, 3:1295–1296
quan yin, 3:1864
Pill Curing (traditional Chinese medicine), 2:907
Pilocarpine hydrochloride, 2:721, 934
Pilonidal abscesses, 1:1
Pimenta acris, 1:209
Pimozide, for Tourette syndrome, 4:2250
Pimpinella anisum. See Anise

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Pimples, 1:6
See also Acne
Pinched nerves, 3:**1751–1755,** *1752*
Pine, Scotch. *See* Scotch pine
Pine bark extract, 3:*1755,* **1755–1757**
bursitis, 1:364
grape seed extract and, 2:960
grape skin and, 2:963
infertility, 2:1181
pain, 3:1684
rashes, 3:1882
retinopathy, 3:1919
systemic lupus erythematosus, 4:2188
Pine flower essence, 1:198; 2:850*t,* 851
Pine pollen, natural hormone replacement therapy and, 3:1573
Pineapple
BHAs in, 1:232
bromelain in, 1:337–338
for vomiting, 4:2359
for warts, 4:2363
Pinehurst Tea Plantation, 4:2220
Pinellia, 3:**1757–1758**
Pink (color), emotional properties, 1:184
Pinkeye. *See* Conjunctivitis
Pinkroot, for worms, 4:2393
Pinus maritima. See Pine bark extract
Pinus sylvestris. See Scotch pine
Pinworms
mugwort for, 3:1533
overview, 3:1703; 4:2392, 2393
scallion for, 4:1984
wormwood for, 4:2395
Piper melegueta. *See* Grains-of-paradise fruit
Piper methysticum. See Kava kava
Pippali, for wheezing, 4:2373
Pipsissewa. *See* Prince's pine; Wintergreen
Piracetam, for dyslexia, 2:727
Piriformis syndrome, 4:2000–2001
Piscidia species. *See* Jamaican dogwood
Pissabed. *See* Dandelion
Pit viper bites, 1:259
Pitocin, 1:483
Pitta dosha
overview, 1:192, *192,* 193, 193*t*
panchakarma, 3:1689
Pittsburgh School of Pain Management, 4:2271
Pituitary gland disorders, 1:71; 2:1149
Pityriasis rosea, 3:**1759–1761**
Pityrosporum orbiculare infections, selenium for, 4:2009
Pityrosporum ovale
cradle cap, 1:619, 620
dandruff, 2:660
Pius XII (pope), 1:436
Pizzorno, Joseph, 3:1543
Placebo effect, 3:**1761–1763**
Bach flower essences, 1:199
mind/body medicine, 3:1505
psychoneuroimmunology, 3:1839
Placenta
delivery, 1:483
retained, breast feeding and, 1:328, 329
Plant-derived enzymes, 2:768, 769
Plantago species. *See* Plantain; Psyllium
Plantain, 3:*1763,* **1763–1766**
chickenpox, 1:478
contact dermatitis, 1:602
cradle cap, 1:620
cuts and scratches, 1:648
hemorrhoids, 2:1033
itching, 2:1229
laryngitis, 3:1308, 1309
peptic ulcers, 4:2286
rashes, 3:1882
urinary incontinence, 4:2293
See also Psyllium
Plantar fascia, heel spurs and, 2:1028, 1029, 1030
Plantar warts, 4:2361, 2364
Plants. *See* Toxicity; *specific plants*
Plaque, arterial
borage for, 1:310
fish oil for, 2:841
flaxseed for, 2:847
linoleic acid for, 3:1348
overview, 1:165
Plaque, dental. *See* Dental plaque
Plaque psoriasis, 3:1835, 1836
Plaquenil (hydroxychloroquine), for juvenile rheumatoid arthritis, 2:1253
Plastic surgery, for sleep apnea, 4:2081–2082
Platelet-derived growth factors (PDGFs), in colostrum, 1:583
Platycodon grandiflorum, 1:77; 3:1768
Pleural effusion, 3:1766, *1766*
Pleurisy, 1:480, 587; 3:*1766,* **1766–1769**
Pleurisy root. *See* Butterflyweed
Plexopathy, defined, 3:1752
Pliny the Elder
aloe, 1:60
balm of Gilead, 1:200
elder flower, 2:746
mint, 4:2118
pennyroyal, 3:1726
rose, 3:1948
thyme, 4:2236
wild cherry, 1:474
PMI-001 (thunder god vine extract), 4:2234
PML (multifocal leukoencephalopathy), 1:35
PMS. *See* Premenstrual syndrome
Pneuma, 2:761
Pneumococcal conjugate vaccine, for ear infections, 2:735
Pneumococcal meningitis, 3:1470
Pneumocystis carinii pneumonia (PCP), 1:34; 3:1770, 1773
Pneumonectomy, for lung cancer, 3:1372
Pneumonia, 3:**1769–1773**
craniosacral therapy for, 1:627
lobelia for, 3:1354
lomatium for, 3:1356
lycopodium for, 3:1380
osha for, 3:1653
oxygen therapy for, 3:1679
pleurisy from, 3:1766
usnea for, 4:2298
vitamin C for, 4:2341*t*
Pneumothorax, for tuberculosis, 4:2277
Po Chai, for gastroenteritis, 2:907
Podophyllum
epididymitis, 2:774, 775
food poisoning, 2:861
genital warts, 2:914
Poison black cherry. *See* Belladonna
Poison control centers, 1:467, 471, 472
Poison ivy. *See* Rhus toxicodendron
Poison nut. *See Nux vomica*
Poison oak. *See* Rhus toxicodendron
Poison sumac, contact dermatitis from, 1:602
Poisoning
activated charcoal for, 1:456, 457
glutathione for, 2:940
ipecac for, 2:1206, 1208
jaundice and, 2:1234
oregano for, 3:1639
polarity therapy for, 3:1774
ruta for, 3:1961
vomiting and, 4:2357
See also Antidotes; *specific types of poisoning*
Poisonous plants. *See* Toxicity
Poisonous snakes, 1:259, 260, 262
Poke root. *See* Phytolacca
Polar plant. *See* Rosemary
Polarity therapy, 3:**1774–1776**
biological cancer treatment and, 1:396
detoxification and, 2:679
for neck pain, 3:1586
Polarity yoga, 3:1774–1775
Polio, 1:583; 4:2259
Polk salad. *See* Phytolacca
Pollack, Philip, 1:207
Pollen
hay fever from, 2:997–998, 1000
sick building syndrome and, 4:2058
See also Bee pollen

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Pollution
cancer and, 1:386
chemical poisoning and, 1:469–470
detoxification for, 2:677–680
emphysema from, 2:753, 755, 757
environmental therapy and, 2:764–766
hypothyroidism and, 2:1149
lung cancer and, 3:1369
mercury poisoning and, 3:1487, 1488
multiple chemical sensitivity, 3:1538
See also Air pollution
Polyarticular juvenile rheumatoid arthritis, 2:1252, 1254
Polychrest remedies, 1:376
Polycystic ovarian syndrome (PCOS), 3:**1776–1780**
amenorrhea and, 1:71
causes, 3:1675
chromium for, 1:529
inositol for, 2:1192
treatment, 3:1677
Polyethylene glycol, for constipation, 1:599–600
Polygala senega, in Sun's soup, 4:2171
Polygonatum multiflorum. See Solomon's seal
Polygonum cuspidatum, 1:77
Polygonum multiflorum. See Fo ti
Polymenorrhea, 3:1481
Polymerase chain reaction (PCR) tests
AIDS, 1:35
chlamydia, 1:513–514
syphilis, 4:2183
tuberculosis, 4:2276
whooping cough, 4:2379
Polynesian bush fruit. *See* Noni
Polyphenols, in green tea, 2:967–968
Polyporus, for chemotherapy support, 2:1042
Polysaccharides
aloe, 1:60
boneset, 1:306
bovine cartilage, 1:410
Polysomnography
narcolepsy, 3:1564
sleep apnea, 4:2080, 2097
sleep disorders, 4:2084
Pomegranate, for infertility, 2:1181
Pondimin (fenfluramine), 3:1625
Pools, for hydrotherapy, 2:1121
See also Hydrotherapy
Poor man's ginseng. *See* Codonopsis root; Goldenseal
Poor man's parmacetti. *See* Shepherd's purse
Poplar, for rashes, 3:1882
Populus candicans. See Balm of Gilead
Poria cocos, 1:174
Pork, omega-3-fortified, 2:847
Porphyria, vitamin E for, 4:2350
Porta, Giovanni Battista della, 1:317
Portal cirrhosis, 1:545
See also Cirrhosis
Porter's lovage. *See* Osha
Portulacca oleracea, 1:77
Position of release (craniosacral therapy), 1:627
Positive symptoms of schizophrenia, 4:1994, 1995
Positron emission tomography (PET)
epilepsy, 2:777
ischemia, 2:1224
lung cancer, 3:1370
memory loss, 3:1462
Posse, Baron Nils, 3:1439
Post, Charles Williams, 3:1578
Post-coital tests, 2:1180
Post-event sports massage, 4:2125, 2126
See also Sports massage
Post-exposure prophylaxis, for rabies, 3:1870, 1871
Post-hepatic jaundice, 2:1234, 1236–1237
Post-primary tuberculosis, 4:2275
Post-traumatic stress disorder (PTSD), 3:**1782–1787,** 1783*t*
Aston-Patterning and, 1:162
Gulf War syndrome and, 2:974
inositol for, 2:1192
Post-viral fatigue syndrome. *See* Chronic fatigue syndrome
Postherpetic neuralgia, 3:1595, 1597–1598; 4:2051, 2052, 2053, 2054
Postnecrotic cirrhosis, 1:545
See also Cirrhosis
Postovulatory phase of menstruation, 1:71; 3:1479
Postpartum depression, 3:**1780–1782;** 4:2129
Postpartum urinary incontinence, 2:1263, 1265
Postterm birth, defined, 1:483
Posture
cerebral palsy and, 1:444
ortho-bionomy for, 3:1649
Rolfing for, 3:1941, 1942
Thai massage for, 4:2218
Postures, yoga. *See* Physical postures
Pot marigold. *See* Calendula
Potassium, 3:**1787–1790**
aloe and, 1:62
apple cider vinegar and, 1:124
in dandelion, 2:659, 746
diuretics and, 1:463
as major mineral, 1:462, 463
for mononucleosis, 3:1514
for tinnitus, 4:2242
Potassium broth, 3:1788
Potassium chloride, in cell salt therapy, 1:432
Potassium-chloride sensitivity tests, for interstitial cystitis, 2:1202
Potassium deficiency, 1:234; 3:1787, 1788
Potassium gluconate, 3:1789
Potassium overdose, 1:463; 3:1789–1790
Potassium phosphate. *See Kali phosphoricum*
Potassium sulfate, in cell salt therapy, 1:432
Potatoes
compresses of, for sties, 4:2141
for tuberculosis, 4:2276
Potentization
Bach flower remedies, 2:852
homeopathy, 1:118; 2:1089, 1093
kali bichromium, 2:1256
sepia, 4:2027
Potowatami people, horsetail use, 2:1106
Pottenger, Francis, 2:1077
Pouchitis
acidophilus, 1:5
probiotics for, 3:1306
Poultices
for bedsores, 1:211
borage, 1:311
burdock, 1:360
castor oil, 1:412, 414
chickweed, 1:480
comfrey, 1:587
defined, 1:318
French green clay, 2:866–867, 868
garlic, 2:897
green tea, 2:968–969
for hives, 2:1072
honeysuckle, 2:1098
for jock itch, 2:1240
marsh mallow, 3:1435
plantain, 3:1763, 1764
for skin reactions, 1:55
for sunburn, 4:2168
tangerine peel, 4:2196
Poultry, in anti-inflammatory diet, 1:107
Povidone-iodine, for ingrown nails, 2:1191
Powdered slippery elm, 4:2089
Power yoga, 2:804, 993
PPD (purified protein derivative) tests, for tuberculosis, 4:2276
PPIs. *See* Proton pump inhibitors
Prairie hyssop. *See* Hyssop
Prakriti, 1:192, 578
Prana
overview, 1:192
polarity therapy, 3:1774
pranic healing, 3:1791

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Prana *(continued)*
pulse diagnosis, 3:1855
therapeutic touch, 4:2222
vegetarianism, 4:2324
See also Chi
Pranayama, 1:331; 2:992; 3:1791; 4:2409
See also Breath therapy
Pranayama yoga, 2:804
Pranic healing, 3:**1790–1793**
Prayer and spirituality, 3:**1793–1796;** 4:2324
anthroposophical medicine, 1:102
bhakti yoga, 1:235–237
Cayce systems, 1:424
curanderismo, 1:640–641
holistic medicine, 2:1082
Huna, 2:1117–1119
for hypercortisolemia, 2:1125
hypnotherapy, 2:1142
for insomnia, 2:1195
labyrinth walking, 3:1295–1298
lacto-ovo vegetarianism, 3:1301
meditation, 3:1448
for menopause, 3:1476
for obsessive-compulsive disorder, 3:1628
quan yin, 3:1862–1865, *1863*
See also Spiritual healing
Pre-diabetes, 2:685
Pre-event sports massage, 4:2125, 2126
See also Sports massage
Pre-maintenance phase, Atkins diet, 1:171
Prebiotics
defined, 3:1818
for dysbiosis, 2:723
fructooligosaccharides as, 2:874
for inflammatory bowel disease, 2:1184
Prednisone, for multiple sclerosis, 2:778
Preeclampsia
calcium, 1:378
linoleic acid, 3:1348
magnesium sulfate, 1:446
Pregabalin, for fibromyalgia, 2:839
Pregnancy, 3:**1796–1801,** 1796*t*
andrographis and, 1:77
angelica and, 1:88
autoimmune disorders and, 3:1925–1926
black haw and, 1:276, 277
caffeine and, 1:374
calcium and, 1:378
celiac disease and, 2:944–945
cellulite and, 1:438
cerebral palsy and, 1:441, 445–446
cervical dysplasia and, 1:450
chasteberry and, 1:460
chickenpox and, 1:479
chlamydia and, 1:512
cyperus for, 1:651
devil's claw and, 2:680, 681, 682
edema from, 2:745
essential oils and, 2:789
eucommia bark and, 2:795
evening primrose oil for, 2:882
gestational diabetes and, 2:686
ginger and, 2:921, 922
grains-of-paradise for, 2:960
HIV transmission and, 1:33, 37
iodine deficiency and, 2:1205
linoleic acid for, 3:1348
marijuana and, 3:1433
milk thistle and, 3:1504
MMR vaccine and, 3:1547
motion sickness and, 3:1520
osteopathy for, 3:1658
Pilates for, 3:1750
postpartum depression, 3:1780–1782; 4:2129
postpartum urinary incontinence, 2:1263, 1265
raspberry for, 3:1883–1884
restless leg syndrome and, 3:1910–1911
Rosen method for, 3:1953
rubella and, 3:1955, 1956, 1957
squawvine and, 4:2130
syphilis and, 4:2182, 2185
systemic lupus erythematosus and, 4:2189
therapeutic touch for, 4:2222
uterine fibroids and, 4:2302, 2303
veganism and, 4:2321
See also Morning sickness
Pregnancy massage, 3:**1801–1803,** *1802*
Pregnenolone, natural hormone replacement therapy and, 3:1573
Prejudice, anxiety from, 1:115
Premarin, for hot flashes, 2:1110–1111
Premature ejaculation
Chinese yams for, 1:506
cuscuta for, 1:645
damiana for, 2:653
epimedium for, 2:781
eucommia bark for, 2:795
overview, 4:2031
psoralea seeds for, 3:1834
schisandra for, 4:1989, 1990
squeeze technique, 4:2033
tangerine peel for, 4:2196
Premature infants
cerebral palsy and, 1:441, 445–446
defined, 1:483
massage therapy for, 2:1172; 3:1440, 1442
music therapy for, 3:1552
relaxation therapy and, 3:1906
therapeutic touch for, 4:2223
Premenstrual dysphoric disorder (PMDD), 3:1479, 1483, 1804, 1805
See also Premenstrual syndrome
Premenstrual phase of menstruation, 1:71; 3:1479
Premenstrual syndrome (PMS), 3:1482, **1803–1808,** 1804*t*, *1805*
apitherapy for, 4:2331
black currant seed oil for, 1:275
buchu for, 1:347
calcium for, 1:378–379
chamomile for, 1:455
chasteberry for, 1:459–460
chicory for, 1:481–482
Chinese thoroughwax for, 1:505
evening primrose oil for, 2:799
facial massage for, 2:809
fish oil for, 2:842
flaxseed for, 2:846
gamma-linolenic acid for, 2:882, 883, 884
ginkgo for, 2:922
khella for, 2:1271
lachesis for, 3:1299
lacto-ovo vegetarianism for, 3:1302
lemon balm for, 3:1326
linoleic acid for, 3:1348
magnesium for, 3:1406
manganese for, 3:1422, 1423
niacin for, 3:1600
overview, 3:1481
pine bark extract for, 3:1756
pyridoxine for, 3:1805, 1857; 4:2338
Rosen method for, 3:1953
sesame oil for, 4:2030
shepherd's purse for, 4:2044
skullcap for, 4:2075
therapeutic touch for, 4:2223
turmeric for, 1:642
veganism for, 4:2319
vegetarianism for, 4:2326
yoga for, 4:2409
Prempro, 2:1110–1111; 3:1665
Prenatal care, 3:1798
Prenatal tests, 3:1798; 4:2185
Presbycusis, 2:1008
Prescription drugs. *See* Drugs
Prescription for Nutritional Healing (Balch), 1:268; 4:2309
Preservatives, food. *See* Food additives and preservatives
President's Council on Physical Fitness and Sport, 3:1559
Pressure points. *See* Acupuncture points
Pressure sores/pressure ulcers. *See* Bedsores
Pressure treatment. *See* Acupressure; Compression treatment; Reflexology
Preston, Edmond, 3:1748
Preuss, Harry, 3:1412, 1413
Prevention (magazine), 4:2085
Prevention's Healing with Vitamins, 1:555; 4:2421

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Preventive surgery
breast cancer, 1:327, 391
cancer, 1:391
Priapism, sickle cell anemia and, 4:2063
Price, Weston A., 2:1075, 1077
Price-Pottenger Nutrition Foundation, 2:1077
Prickly ash bark
in Hoxsey formula, 2:1114
knee pain, 2:1283
Raynaud's syndrome, 3:1887
Prickly heat, 3:**1808–1809,** 1881
tea tree oil for, 4:2198
white peony root for, 4:2374
Prickly pear cactus, 2:1200; 3:*1810,* **1810–1814**
Priessnitz, Vinzenz, 2:1120
Priest's crown. *See* Dandelion
Prilosec (omeprazole), for hiatal hernia, 2:1062
Primal therapy, 3:1848
Primaquine, for malaria, 3:1417
Primary amenorrhea, 1:70; 3:1479–1480
See also Amenorrhea
Primary chemotherapy. *See* Neoadjuvant chemotherapy
Primary dysmenorrhea, 2:728–729; 3:1480
See also Dysmenorrhea
Primary headaches, 2:1001
Primary lung cancer, 3:1368
See also Lung cancer
Primary osteoarthritis, 3:1654–1655
See also Osteoarthritis
Primary syphilis, 4:2181
See also Syphilis
Primidone, for epilepsy, 2:778
Prince's pine, 3:**1814–1815**
Pritikin, Nathan, 3:1815–1816
Pritikin, Robert, 3:1816
Pritikin diet, 3:1645, **1815–1818**
Pritikin Longevity Centers, 3:1816, 1817
The Pritikin Permanent Weight-Loss Manual (Pritikin), 3:1816
The Pritikin Program for Diet and Exercise (Pritikin), 3:1816
PRK (Photorefractive keratectomy), 1:160; 3:1556
Pro-inflammatory foods, 1:107
Proanthocyanidins (PCOs)
for aging, 1:30
as antioxidant, 1:111
in cranberry, 1:624
in grape seed extract, 2:960–961, 962
in grape skin, 2:963, 964
for gum diseases, 2:978
overview, 1:246
for phlebitis, 3:1740
in pine bark extract, 3:1756
for retinopathy, 3:1919
Probiotics, 3:1305–1306, **1818–1822**
acidophilus as, 1:3–6
chronic fatigue syndrome, 1:533
colitis, 1:570
colonic irrigation and, 1:576
diarrhea, 2:697–698
dysbiosis, 2:723
gastroenteritis, 2:907
hangovers, 2:988
inflammatory bowel disease, 2:1184
irritable bowel syndrome, 2:1221
kombucha as, 2:1290
lactobacilli as, 3:1305
Lyme disease, 3:1386
parasitic infections, 3:1705
Saccharomyces boulardii as, 4:1963–1964
systemic lupus erythematosus, 4:2188
vaginitis, 4:2309
wild oat as, 4:2385
Procaine, in neural therapy, 3:1593–1594
Processed foods
cellulite, 1:438
chemical poisoning, 1:469
elimination diet, 2:751, 752
Procyanidins
as antioxidant, 1:111
in grape seed extract, 2:960, 961
Prodrome stages
cold sores, 1:562
genital herpes, 2:911
hot flashes, 2:1108
pityriasis rosea, 3:1760
schizophrenia, 4:1991
Productive cough, 1:617–618
Progenitor cryptocides, cancer and, 3:1352, 1353
Progesterone
amenorrhea and, 1:71
cellulite and, 1:437
in chasteberry, 1:459
in hormone replacement therapy, 1:248, 249
hot flashes and, 2:1110, 1111
menopause and, 3:1474
menorrhagia and, 3:1480
menstruation and, 3:1479
natural hormone replacement therapy and, 3:1570, 1571, 1572
premenstrual syndrome and, 3:1804, 1805
saw palmetto and, 4:1979
synthetic, Mexican yam and, 3:1495, 1496
vaginitis, 4:2309
Progesterone challenge tests, 1:71
Progestins
in hormone replacement therapy, 1:248, 249
for hot flashes, 2:1111
Programmed senescence theory, 1:29
Progressive myonecrosis, 2:885–886
Progressive relaxation, 3:1905
behavioral therapy and, 1:219
defined, 3:1904
for fatigue, 2:816
for Tourette syndrome, 4:2249
Progressive Relaxation (Jacobson), 3:1904
Prokinetic drugs
heartburn, 2:1024
indigestion, 2:1170
stomachaches, 4:2144
Prolactin, 1:71, 459–460
Prolapsed disks. *See* Herniated disks
Proliferative phase of menstruation, 1:71; 3:1479
Proline-rich polypeptides (PRPs), in colostrum, 1:583–584
Prolotherapy, 3:**1823–1824**
Pronation, heel spurs and, 2:1028
Propecia. *See* Finasteride
Prophylactic surgery. *See* Preventive surgery
Propionibacterium acnes, 1:6
Propolis, for cirrhosis, 1:548
Propoxyphene, for osteoarthritis, 3:1657
Propulsid (cisapride), for indigestion, 2:1170
Propylthiouracil (PTU), for hyperthyroidism, 2:1139
Proscar. *See* Finasteride
Proscillaridin, 2:707
Prostaglandins
in aloe, 1:60
in black cumin seed extract, 1:272–273
in black currant seed oil, 1:274, 275
in borage, 1:310
dysmenorrhea and, 2:729
essential fatty acids and, 3:1634–1635, 1636
glaucoma and, 2:934
in linoleic acid, 3:1347
Raynaud's syndrome and, 3:1886
in white willow, 4:2376
Prostaglandins, Leukotrienes, and Essential Fatty Acids (journal), 4:2030
Prostasin blood protein, ovarian cancer and, 3:1669
Prostate biopsy, 3:1826, 1831
Prostate cancer, 3:**1824–1829,** *1825*
cuscuta for, 1:646
DHEA and, 2:683
dong quai and, 2:719
Equiguard for, 4:1990
flaxseed for, 2:847
ganoderma for, 2:888
green tea for, 2:967
high fiber diet for, 2:1067

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Prostate cancer *(continued)*
immuno-augmentation therapy and, 2:1160
lycopene for, 1:405; 3:1378
resveratrol for, 3:1913
selenium for, 4:2011
soy protein for, 4:2116
syphilis and, 4:2182
veganism and, 2:1067; 4:2320
Prostate disorders
cuscuta for, 1:646
neural therapy for, 3:1594
prince's pine for, 3:1815
schisandra for, 4:1990
See also specific disorders
Prostate enlargement, 3:**1829–1833,** *1830*
African pygeum for, 1:24–25, 26
androstenedione and, 1:78
colchicum for, 1:560
cornsilk for, 1:611
goldenrod for, 2:947
grape seed extract for, 2:961
horsetail for, 2:1106
hyperthermia for, 2:1136
kava kava for, 2:1261
kelp for, 2:1269
nettle for, 3:1592
prostate cancer and, 3:1825, 1827
saw palmetto for, 3:1827, 1831, 1832; 4:1978–1979, 1980–1981
traditional African medicine for, 4:2253, 2254
urinary incontinence and, 4:2291
zinc for, 4:2421
Prostate infections
kidney infections, 2:1274
UTIs, 1:285, 286
Prostate-specific antigen (PSA) tests, 3:1826, 1828, 1831
Prostatectomy, 3:1827
Prostatitis
African pygeum for, 1:25
lycopodium for, 3:1380
quercetin for, 3:1866
saw palmetto for, 4:1979
Prosthetic valve endocarditis, 4:2136
Protease inhibitors
for AIDS, 1:37
garlic and, 2:896, 897–898
St. John's wort and, 4:2132
Proteases, 2:768
Protectors (traditional Chinese medicine), 2:1051
Protein
in Atkins diet, 1:171
cirrhosis and, 1:547
essential amino acids in, 1:73–74
fatigue and, 2:816
hypoglycemia and, 2:1146
jaundice and, 2:1236
lacto-ovo vegetarianism and, 3:1303
lysine and, 3:1392
memory loss and, 3:1461
morning sickness and, 3:1517
myopia and, 3:1557
in Ornish diet, 3:1646
overview, 3:1612
senior nutrition and, 4:2016
veganism and, 4:2322
vegetarianism and, 4:2327
in Zone diet, 4:2423, 2424
Proteolytic enzymes, gum disease and, 2:976
Proteus species, 2:1273; 4:2176
Proton pump inhibitors (PPIs)
heartburn, 2:1024
peptic ulcers, 4:2286
stomachaches, 4:2144
Protoplasmic mushroom poisoning, 2:861
Protostat. *See* Metronidazole
Protozoan infections
with AIDS, 1:34
barberry for, 1:202
overview, 3:1702, 1703–1704
Provenge, 3:1829
Provigil (modafinil), for narcolepsy, 3:1564
Provings (homeopathy)
apis, 1:118
bryonia, 1:345
cell salt therapy, 1:433
Hahnemann, Samuel and, 2:1085
kali bichromium, 2:1255
lachesis, 3:1299
ledum, 3:1324
research on, 1:320
silica, 4:2067
Provitamin A. *See* Beta carotene
Provocation tests
allergies, 1:54
hay fever, 2:998
Prozac. *See* Fluoxetine
PRPs (proline-rich polypeptides), in colostrum, 1:583–584
Prudden, Bonnie, 3:1557–1558, 1559, *1559;* 4:2269–2270
Prudden, John F., 1:410
Prunella vulgaris, for itching, 2:1229
Prunus armeniaca. See Apricot seed
Prunus avium. See Wild cherry
Prunus cerasus. See Wild cherry
Prunus serotina. See Wild cherry
Prunus virginianus. See Wild cherry
Pruritus. *See* Itching
Prussic acid, from amygdalin, 1:129–130
PSA (prostate-specific antigen) tests, 3:1826, 1828, 1831
Pseudephedrine, 2:770, 771
Pseudoaldosteronism, 2:662
Pseudocysts, pancreatic, 3:1694, 1695
Pseudoginseng. *See* Notoginseng root
Pseudomembranous colitis, probiotics for, 3:1819
Pseudomonas aeruginosa infections, 2:965; 4:2176
Psoas abscesses, 1:1
Psoralea seeds, 3:**1833–1835**
Psoriasis, 3:*1835,* **1835–1839**
apitherapy for, 4:2331
beta carotene for, 1:228
BHAs for, 1:232
bitter melon for, 1:264
chickweed for, 1:480
chondroitin for, 1:523
coleus for, 1:566
fish oil for, 2:841
Gerson therapy for, 2:919
grapefruit seed extract for, 2:966
inositol for, 2:1192
jojoba oil for, 2:1242
juniper for, 2:1249
meditation for, 3:1449, 1451–1452
milk thistle for, 3:1503
neem for, 3:1588
oxygen therapy for, 3:1680
phytolacca for, 3:1748
psoralea seeds for, 3:1834
red clover for, 3:1891
stevia for, 4:2138
sulfur for, 4:2162, 2163
urine therapy for, 4:2295
vitamin D for, 4:2347
wild oat for, 4:2385
yellow dock for, 4:2406
zinc for, 4:2421
Psoriatic arthritis, 3:1836, 1837; 4:2101
Psoriatic juvenile rheumatoid arthritis, 2:1252
Psoric miasms, 1:376; 2:1094
Psychiatric disorders. *See* Mental disorders
Psychiatric nurses, 3:1849
Psychiatrists, 3:1849
Psychic trauma
hair loss and, 2:983
ignatia for, 2:1157
journal therapy for, 2:1243–1244
memory loss and, 3:1462, 1463
neural therapy and, 3:1594
post-traumatic stress disorder and, 3:1782–1786
Psychoanalysis, 3:1844, 1848
See also Psychotherapy
Psychodynamic therapy, 3:1844, 1846*t*
Psychogenic disorders. *See* Psychosomatic disorders
Psychological disorders. *See* Mental disorders
Psychological factors
anorexia nervosa, 1:99–100
breast-feeding problems, 1:328, 329

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

bulimia nervosa, 1:353
cancer, 1:389
chronic fatigue syndrome, 1:531, 533
impotence, 2:1164
indigestion, 2:1168
obesity, 3:1623
sexual dysfunction, 4:2032
temporomandibular joint syndrome, 4:2206

Psychological tests
ADHD, 1:176
alcoholism, 1:43
anorexia nervosa, 1:100
anxiety, 1:115
art therapy and, 1:145
binge eating disorder, 1:240
bipolar disorder, 1:256
depression, 2:669
post-traumatic stress disorder, 3:1785

Psychologists, 3:1849

Psychoneuroimmunology, 3:1506, **1839–1840**

Psychopharmacology (journal), 4:2220

Psychophysical integration. *See* Trager psychophysical integration

Psychophysiology, 3:**1840–1842**

Psychosis, 2:665; 4:1991–1992

Psychosomatic disorders
dry mouth and, 2:720
itching and, 2:1227
low back pain and, 3:1363
mind/body medicine and, 3:1505
psychophysiology and, 3:1840, 1841, 1842
Rosen method for, 3:1952
therapeutic touch for, 4:2222, 2223

Psychosomatic medicine, 3:**1843–1845**

Psychostimulants. *See* Stimulants

Psychotherapists, 3:1849

Psychotherapy, 3:**1845–1849,** 1846*t*
ADHD, 1:176
AIDS, 1:37
anorexia nervosa, 1:101
anthroposophical medicine, 1:103
anxiety, 1:116
art therapy and, 1:146–147
binge eating disorder, 1:241
bipolar disorder, 1:257
breath therapy and, 1:331
bulimia nervosa, 1:353–354
Cayce systems and, 1:424
chronic fatigue syndrome, 1:533
depression, 2:670
fatigue, 2:816
fibromyalgia, 2:839
genital herpes, 2:911
Gulf War syndrome, 2:975
headaches, 2:1005
as holistic medicine, 2:1081
hypercortisolemia, 2:1125
impotence, 2:1165
irritable bowel syndrome, 2:1221
journal therapy and, 2:1243–1244
low back pain, 3:1366
mercury poisoning, 3:1489
movement therapy as, 3:1524
osteoarthritis, 3:1656
ovarian cancer, 3:1670
ovarian cysts, 3:1676
panchakarma and, 3:1690
past life therapy and, 3:1717
postpartum depression, 3:1781
rosacea, 3:1945
Rosen method and, 3:1953
seasonal affective disorder, 4:2008
sensory integration disorder, 4:2026
sexual dysfunction, 4:2032
sleep disorders, 4:2086
substance abuse, 4:2161, 2162
Tourette syndrome, 4:2249

Psyllium, 3:*1849,* **1849–1851**
colitis, 1:570
constipation, 1:598, 600
detoxification, 2:679
diarrhea, 2:698
insulin resistance, 2:1200
irritable bowel syndrome, 2:1220
from plantain, 3:1764
seniors, 4:2017
weight loss, 3:1624
See also Plantain

PTSD. *See* Post-traumatic stress disorder

PTU (propylthiouracil), for hyperthyroidism, 2:1139

Puberty, 3:1474, 1479

Pubic lice, 3:1336, 1337, 1338

Public health issues
AIDS, 1:32–33
gonorrhea, 2:951
lice infestations, 3:1336
Lyme disease, 3:1384
malaria, 3:1414–1415
rabies, 3:1869
substance abuse, 4:2158
syphilis, 4:2185–2186
tuberculosis, 4:2273–2274

Public Library of Science, 2:1164

PubMed, 1:558

Pubococcygeal muscles, Kegel execises and, 2:1263–1264, 1265

Pudding grass. *See* Pennyroyal

Pueraria lobata. See Kudzu

Puerarin, in kudzu, 2:1291, 1292

Puffball. *See* Dandelion

Pufferfish food poisoning, 2:860

Pukeweed. *See* Lobelia

Pulled muscles. *See* Sprains and strains

Pulmonary embolisms, 3:1740–1741

Pulmonary function tests, 1:339; 4:2371

Pulmonary heart disease. *See* Heart diseases

Pulmonary tuberculosis, 4:2275
See also Tuberculosis

Pulsatilla, 3:*1852,* **1852–1854**
anxiety, 1:115
chickenpox, 1:478
conjunctivitis, 1:594
ear infections, 2:733
earaches, 2:737
epididymitis, 2:774, 775
in homeopathy, 2:1084*t*
indigestion, 2:1169
measles, 3:1447
menopause, 3:1476
menstruation disorders, 3:1483
nausea, 2:1207
rubella, 3:1956
stomachaches, 4:2144
swimmer's ear, 4:2177
urinary incontinence, 4:2293
vaginitis, 4:2309
wheezing, 4:2372

Pulse diagnosis, 3:**1854–1856**
Tibetan medicine, 4:2240
in traditional Chinese medicine, 2:1043; 4:2258

Pulsing electromagnetic fields, for migraine, 3:1501

Pummeling, in Swedish massage, 4:2173

Pumpkin seeds, for worms, 4:2393

Punarnova, for wheezing, 4:2373

Punch grafting, for acne, 1:9

Puncture wounds, 4:2398
See also Wounds

Pungent tastes
Ayurvedic medicine, 1:194–195
traditional Chinese medicine, 1:503

Punica granatum, for worms, 4:2393

Pupil, Adie's. *See* Adie's pupil

Pupil dilation, belladonna and, 1:221

Purdue University, 2:891

Puretone air-conduction threshold testing, 1:180

Purgatives. *See* Laxatives

Purification therapy. *See* Panchakarma

Purified protein derivative (PPD) tests, for tuberculosis, 4:2276

Purines, gout and, 2:955, 957, 958

Purple (color), emotional properties, 1:184

Purple angelica. *See* Angelica

Purple clover. *See* Red clover

Purple coneflower. *See* Echinacea

Purple loosestrife. *See* Lysimachia

Purple medick/medicle. *See* Alfalfa

Purple willow herb. *See* Lysimachia

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Purpura, defined, 1:341
See also Bruises
Purpura simplex, 1:342
Pustular psoriasis, 3:1836
Pustular rashes, 3:1880
See also Rashes
Pustules, 1:6
Putrefaction, 3:1820
Pycnogenol. *See* Pine bark extract
Pyelonephritis. *See* Kidney infections
Pygeum. *See* African pygeum; Saw palmetto
Pyogenic bacteria, abscesses from, 1:1
Pyonephrosis, 2:1272
Pyorrhea. *See* Periodontitis
Pyrazinamide, for tuberculosis, 4:2277
Pyrethrin, for malaria prevention, 3:1417
Pyrethroid pediculicides, 3:1340
Pyridoxine, 3:**1857–1858**
autism, 1:190; 3:1857; 4:2338
blood clots, 1:292
carpal tunnel syndrome, 1:408–409
cerebral palsy, 1:443
cerebral vascular insufficiency, 1:448
cervical dysplasia, 1:451
cirrhosis, 1:547
diarrhea, 2:697
dysmenorrhea, 2:729
hair loss, 2:984
heart disease, 3:1857; 4:2338
hypothyroidism, 2:1150
infertility, 2:1180
inflammatory bowel disease, 2:1185
ischemia, 2:1225
leukemia, 3:1333
lung cancer, 3:1371
Ménière's disease, 3:1467
morning sickness, 3:1517, 1857; 4:2338
osteoarthritis, 3:1656
peripheral neuropathy, 3:1734
phlebitis, 3:1740
premenstrual dysphoric disorder, 3:1483
premenstrual syndrome, 3:1805, 1857; 4:2338
schizophrenia, 4:1998
seborrheic dermatitis, 2:674
sleep disorders, 4:2085
strokes, 4:2157
uterine cancer, 4:2299
vaginitis, 4:2309
Pyridoxine deficiency, 3:1857–1858
Pyrogens, 2:831
Pyrola umbellata. *See* Prince's pine
Pyrrolizidine alkaloids
borage, 1:311
coltsfoot, 1:586, 587
comfrey, 1:588
Pythagoras, 2:761
Pytola rotundiflora. *See* Wintergreen

Q

Qi. *See* Chi
Qi healing massage, 1:500
Qi Ju Di Huang Wan, 3:1377
Qi She, for tetanus, 4:2215
Qian ceng ta. *See* Lycopodium
Qian Niu Zi, for worms, 4:2393
Qigong, 3:**1859–1862**
Chinese massage and, 1:498
color therapy and, 1:576
diabetes, 2:688
as exercise, 2:805
hypercortisolemia, 2:1125
leukemia, 3:1334
lymphomas, 3:1420
multiple sclerosis, 3:1543
neuralgia, 3:1597
ovarian cancer, 3:1670
ovarian cysts, 3:1676
overview, 3:1436; 4:2257–2258
Parkinson's disease, 3:1708
peripheral neuropathy, 3:1734
pranic healing and, 3:1792
rheumatoid arthritis, 3:1926
schizophrenia, 4:1999
Qiinghaosu, for malaria, 3:1416
Qin jiao. *See* Gentiana
Qin Jiao Wan, for systemic lupus erythematosus, 4:2188
Qing Dai San, 1:563; 3:1809
Qing Lin Wan, 1:285
Qing Pi. *See* Tangerine peel
Qing Qi Hua Tan Wan, for emphysema, 2:754
Qu Hui Wan, for worms, 4:2393
Quadriplegia, defined, 1:442
Quadruple therapy, for gastritis, 2:903
Quaker bonnet. *See* Skullcap
Quaker rouge. *See* Mullein
Quan yin, 3:**1862–1865,** *1863*
Quantum vacuum, 3:1775
Quartz crystals, 1:637
Quaternary ammonium compounds, in grapefruit seed extract, 2:966
Queen Anne's lace. *See* Wild carrot
Queen of the Nam. *See* Hoodia
Queensroot. *See Stillingia sylvatica*
Quercetin, 3:**1865–1867**
asthma, 1:156
chronic fatigue syndrome, 1:533
dermatitis, 2:674
food allergies, 1:494
gout, 2:957
hives, 2:1072
interstitial cystitis, 2:1202
overview, 1:247
retinopathy, 3:1919
in safflower, 4:1966
skin cancer, 4:2074
Quercus species. *See* Oak
Quicksilver, 3:1486
Quimby, Phineas Parkhurst, 1:526
Quince seed, for irritable bowel syndrome, 2:1220
Quinic acid, in cranberry, 1:624, 625
Quinine
Hahnemann, Samuel and, 2:1085, 1089
for malaria, 3:1417
for muscle cramps, 3:1550
Quinolone antibiotics, tendinitis and, 4:2209
Quon Am. *See* Quan yin
Qurs taifudia, in unani-tibbi, 4:2289
Qust-e-shereen. *See* Aucklandia

R

Rabies, 1:261, 262; 3:**1869–1871**
Rad (radiation unit), 3:1872
Radha, Sivananda, 2:993
Radial keratotomy, for myopia, 3:1556
Radiance Technique Association, 3:1900
Radiation burns, defined, 1:361
See also Burns
Radiation Exposure Compensation Act of 1990, 3:1874
Radiation injuries, 3:**1871–1877,** 1872*t*
aloe for, 1:60
anemarrhena for, 1:80
ledum for, 3:1325
Siberian ginseng for, 2:930
Radiation therapy
antioxidants and, 3:1333–1334
astralagus for, 1:164
breast cancer, 1:325
cancer, 1:391
colorectal cancer, 1:581
cuscuta with, 1:645
Hodgkin's disease, 2:1074–1075
hypercortisolemia, 2:1125
hypothyroidism and, 2:1148
Kaposi's sarcoma, 2:1258, 1259
leukemia, 3:1334
lung cancer, 3:1372
lymphomas, 3:1420
prostate cancer, 3:1827
Siberian ginseng for, 2:930, 931
uterine cancer, 4:2300
Radical prostatectomy, 3:1827
Radiculopathy, defined, 3:1752
Radiesthesia, 3:**1877–1888**
Radioactive iodine, 2:1139, 1205
Radioallergosorbent tests (RAST)
defined, 1:54
detoxification and, 2:678
environmental therapy and, 2:766

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Radiofrequency ablation, for snoring, 4:2098
Radiofrequency treatment, for varicose veins, 4:2317–2318
Radionics, 3:1877, **1878–1879**
Radionics Institute, 3:1878
Radionuclide angiography, 2:1017, 1224
Radiotherapy. *See* Radiation therapy
Radium bromide, for pityriasis rosea, 3:1760
Radix codonopsis. *See* Codonopsis root
Radix et rhizoma rhei. *See* Rhubarb root
Radix glycyrrhizae. *See* Licorice
Radix platycodonis grandiflori, 1:77; 3:1768
Radix vascularis luffae, for whooping cough, 4:2380
Radon
  indoors, 1:468
  lung cancer and, 3:1369
  sick building syndrome and, 4:2058
Raftilin inulin. *See* Inulin
Raftilose oligofructose. *See* Oligofructose
Rainbows (plant). *See* Lysimachia
Raja yoga, 4:2412, 2414
Rakta arka. *See* Arka
Raloxifene, for osteoporosis, 3:1477, 1666
Ramipril, for diabetes, 2:691
Ram's horn. *See* Gymnema
Ramsthorn. *See* Buckthorn
Ramulus Cinnamomi Cassiae. *See* Cinnamon bark
Ramulus Perillae, 1:174
Randoloph, Theron G., 2:764
Ranexa (ranolazine), for angina, 1:91–92
Ranitidine, for indigestion, 2:1170
Ranolazine, for angina, 1:91–92
Ranson's signs, 3:1695–1696
Ranunculus, for shingles, 4:2053, 2054
Rapid antigen tests, 4:2105, 2244–2245
Rapid cycling (bipolar disorder), 1:255
Rapid eye movement (REM) sleep
  bedwetting, 1:212
  insomnia, 2:1193
  narcolepsy, 3:1563
  overview, 4:2082–2083
RAPID grants, 3:1785–1786
Rapid plasma reagin tests, for syphilis, 4:2183
Rapid strep tests, 4:2148
Rashes, 3:*1880*, **1880–1883**
  chamomile for, 1:455
  cicada for, 1:541
  diaper rash, 2:693–695, *694*
  eczema and, 2:741
  grapefruit seed extract for, 2:966
  honeysuckle for, 2:1098
  horsetail for, 2:1107
  itching and, 2:1228, 1229
  lomatium and, 3:1357
  Lyme disease and, 3:*1384*, 1385
  measles and, 3:1445, *1445*
  mononucleosis and, 3:1514
  pityriasis rosea and, 3:1759, 1760
  prickly heat and, 3:1808–1809
  rheumatic fever and, 3:1921
  rubella and, 3:1956
  safflower for, 4:1965
  scarlet fever and, 4:1986, *1986*, 1987, 2147
  schisandra for, 4:1990
  sheep sorrel for, 4:2042
  shingles and, 4:2051, *2051*
  sulfur for, 4:2162, 2163
  syphilis and, 4:2181, 2185
  systemic lupus erythematosus and, 4:2187
  teething and, 4:2205
  urine therapy for, 4:2295
  valerian for, 4:2312
  wild oat for, 4:2385
  yarrow, 4:2401
  yellow dock for, 4:2406
Raspberry, 3:*1883*, **1883–1885**
  infertility, 2:1180
  laryngitis, 3:1309
  menopause, 3:1475
  menstruation disorders, 3:1482
  ovarian cancer, 3:1671
  ovarian cysts, 3:1676
  pregnancy, 3:1798–1799
  premenstrual syndrome, 3:1805
RAST. *See* Radioallergosorbent tests
Ratanhia, 2:978; 4:2393
Rational-emotive therapy, 3:1845
Rattle pouches. *See* Shepherd's purse
Raw nutrition. *See* Wigmore diet
Rayburn, Keith, 3:1811–1812
Raynaud's syndrome, 3:*1885*, **1885–1888**
  biofeedback for, 1:242; 3:1507
  borage for, 1:310
  fish oil for, 2:841–842
  ginkgo for, 2:922
  grape skin for, 2:964
  niacin for, 3:1600
  omega-3 fatty acids for, 3:1632
RDAs. *See* Recommended daily allowances
Reactivation tuberculosis, 4:2275
Reactive hypoglycemia, 2:1144, 1145–1147
  See also Hypoglycemia
Read, J. B., 4:1980
Reading disorders, 3:1320–1321, 1322
  See also Dyslexia
The Real Vitamin & Mineral Book (Lieberman and Bruning), 1:493; 4:2203
Reality therapy, 3:1845
Rebaudi, Ovidio, 4:2138
Rebirthing, 1:330–331
Rebound headaches, 2:1001; 3:1500
Reclast (zoledronic acid), for osteoporosis, 3:1666
Recombinant alpha interferons, for hepatitis, 2:1039
Recommended daily allowances (RDAs)
  beta carotene, 1:228–229, 406
  biotin, 1:253, 253*t*
  calcium, 1:378*t*, 380; 3:1663*t*
  choline, 1:522
  copper, 1:603*t*, 605
  folic acid, 2:856*t*, 857
  history, 1:487; 4:2200
  iodine, 2:1204*t*
  iron, 2:1215*t*, 1216
  magnesium, 3:1404*t*
  manganese, 3:1423, 1423*t*
  niacin, 3:1599*t*, 1600
  vs. orthomolecular medicine, 3:1651
  pyridoxine, 3:1857
  riboflavin, 3:1937–1938, 1938*t*
  selenium, 4:2009*t*, 2010
  sodium, 4:2100*t*, 2101
  thiamine, 4:2228, 2228*t*
  vitamin A, 1:406; 4:2333*t*
  vitamin B12, 4:2335, 2336*t*
  vitamin C, 4:2342*t*, 2344
  vitamin D, 1:580; 3:1663*t*
  vitamin E, 4:2350*t*, 2351
  vitamin K, 4:2353–2354, 2353*t*
  zinc, 4:2419, 2420*t*
  See also Adequate intake; Dietary reference intakes
Reconstructive surgery, for sleep apnea, 4:2081–2082
Records of the Historian (Ssu-ma Ch'ien), 4:2193
Rectal cancer. *See* Colorectal cancer
Rectal disorders, ruta for, 3:1961
Recurrence
  bulimia nervosa, 1:355
  cold sores, 1:561, 562
  colorectal cancer, 1:580
  ear infections, 2:735
  endometriosis, 2:760
  genital herpes, 2:910, 911
  genital warts, 2:914–915
  lice infestations, 3:1339
  Lyme disease, 3:1385
  weight gain, 3:1625
Red (color)
  in color therapy, 1:577
  emotional properties, 1:184

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Red (color) *(continued)*
for fatigue, 2:817
music therapy and, 1:578
Red algae, for genital herpes, 2:912
Red blood cells
alcohol effect on, 1:42
malaria and, 3:1416
See also Anemia
Red bone marrow, in bonemeal, 1:305
Red buckeye. *See* Horse chestnut
Red cedar, 3:**1888–1890,** *1889;* 4:2231
Red chestnut flower essence, 1:198; 2:850*t*, 851
Red clover, 3:*1890,* **1890–1892**
acne, 1:7–8
endometriosis, 2:760
in escharotic treatment, 2:783
hot flashes, 2:1109
in Hoxsey formula, 2:1114, 1115
infertility, 2:1180
menopause, 3:1475
menstruation disorders, 3:1482
premenstrual syndrome, 3:1805
sneezing, 4:2096
whooping cough, 4:2379
Red dates, in Sun's soup, 4:2171
Red elm. *See* Slippery elm
Red ink plant. *See* Phytolacca
Red light reflex, 4:2103
Red nightshade. *See* Phytolacca
Red oak. *See* Oak
Red peony, 2:1169; 3:1887; 4:2374
Red phosporus, 3:1745
See also Phosphorus
Red raspberry. *See* Raspberry
Red root. *See* Bloodroot
Red rose flower essence, 1:197
Red sage, for laryngitis, 3:1309
Red top sorrel. *See* Sheep sorrel
Red weed. *See* Phytolacca
Red wine health benefits, 2:963, 964
Red yeast rice extract, 1:91, 519, 520; 3:**1892–1895,** *1893*
Reduced breathing, 1:369
Redux (dexfenfluramine), 3:1625
Reed, Gregory, 2:923
Reeve, Christopher, 3:1524
Reflex incontinence, 4:2290
See also Urinary incontinence
Reflexes
ortho-bionomy, 3:1648
somatics, 4:2102, 2103
Reflexology, 3:*1895,* **1895–1899,** *1896*
asthma, 1:157
chronic fatigue syndrome, 1:533
earaches, 2:737
eczema, 2:743–744
gastritis, 2:903
gastrointestinal gas, 2:899
headaches, 2:1004
indigestion, 2:1170
infertility, 2:1181
irritable bowel syndrome, 2:1220
knee pain, 2:1283
laryngitis, 3:1308, 1309
Ménière's disease, 3:1467
menstruation disorders, 3:1483
neck pain, 3:1586
neuralgia, 3:1597
peptic ulcers, 4:2286
premenstrual syndrome, 3:1805
restless leg syndrome, 3:1911
rheumatoid arthritis, 3:1926
shingles, 4:2053
sleep disorders, 4:2085–2086
vomiting, 4:2359
Reflux-like dyspepsia, 4:2142
See also Indigestion; Stomachaches
Refractive eye surgery, 1:160; 3:1556
Refractory celic disease, 1:431; 2:943
Region-specific surgery, for sleep apnea, 4:2081
Register of Chinese Herbal Medicine, 2:1257
Reglan. *See* Metoclopramide
Regression therapy. *See* Past life therapy
Regulation and oversight
AHAs, 1:63–64
botanical medicines, 1:319, 320
clinical laboratories, 4:1974
diathermy equipment, 2:700
reflexology, 3:1898
silver, 1:573
yard chemicals, 1:469
See also Certification and licensing
Rehabilitation
music therapy and, 3:1551, 1552
pet therapy and, 3:1738
Russian massage for, 3:1959
schizophrenia, 4:1998
strokes, 4:2156
Rehabilitation Act of 1973, 2:1254
Rehearsed behavior
in behavioral therapy, 1:218, 219
guided imagery for, 2:973
Rehmannia glutinosa. See Chinese foxglove root
Rehydration. *See* Fluid therapy
Reich, Wilhelm, 2:762
Reiki, 3:**1899–1902**
hypercortisolemia, 2:1125
indigestion, 2:1170
neck pain, 3:1586
toothaches, 4:2247
Reiki: Energy Medicine (Barnett and Chambers), 3:1901
Reiki Alliance, 3:1900
Reincarnation, past life therapy and, 3:1717
Reishi mushroom, 3:**1902–1904,** *1903*
anxiety, 1:115–116
chemotherapy support, 2:1042
infections, 2:1176
insomnia, 2:1196
panic disorders, 3:1698
Relapse. *See* Recurrence
Relapsing fever, lice infestations and, 3:1337
Relapsing-remitting multiple sclerosis, 3:1543
Relaxation response
defined, 3:1904
sensory deprivation and, 4:2022, 2023
The Relaxation Response (Benson), 3:1904, 1906; 4:2412
Relaxation therapy, 3:**1904–1908**
anorexia nervosa, 1:100
anxiety, 1:115
art therapy as, 1:146
asthma, 1:156
atherosclerosis, 1:167
behavioral therapy and, 1:218, 219
biofeedback as, 1:242
breast-feeding problems, 1:329, 330
as breath therapy, 1:331
bruxism, 1:343
canker sores, 1:399
childbirth, 1:484–485
dandruff, 2:661
dementia, 2:666
diverticulitis, 2:710
dizziness, 2:714
epilepsy, 2:777
essential oils for, 2:788
facial massage as, 2:809–811
fatigue, 2:816
fibromyalgia, 2:839
genital herpes, 2:911
genital warts, 2:914
geriatric massage as, 2:917
glaucoma, 2:934
guided imagery as, 2:972, 973
headaches, 2:1004
heart attacks, 2:1012
heart disease, 2:1018
heartburn, 2:1024
hot flashes, 2:1112
hydrotherapy, 2:1120
hypercortisolemia, 2:1125
hypnotherapy, 2:1141
inflammatory bowel disease, 2:1185
insomnia, 2:1195
irritable bowel syndrome, 2:1220, 1221
ischemia, 2:1225
laryngitis, 3:1308, 1309, 1310
lemon balm for, 3:1326
lymphomas, 3:1420
meditation and, 3:1450
Ménière's disease, 3:1467
migraine, 3:1500, 1501
mind/body medicine and, 3:1506
mononucleosis, 3:1515
muscle cramps, 3:1550

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

nausea, 3:1583
ortho-bionomy as, 3:1649
ovarian cancer, 3:1670
ovarian cysts, 3:1676
pain, 3:1686
pancreatitis, 3:1695
panic disorders, 3:1698
peptic ulcers, 4:2286
peripheral neuropathy, 3:1734
phobias, 3:1743
pneumonia, 3:1772
post-traumatic stress disorder, 3:1785
pranayama as, 3:1791
pregnancy, 3:1800
Raynaud's syndrome, 3:1887
reiki and, 3:1901
rheumatoid arthritis, 3:1926
Rubenfeld synergy method as, 3:1958
sexual dysfunction, 4:2033
shiatsu as, 4:2047
shingles, 4:2053
sneezing, 4:2096
staphylococcal infections, 4:2136
sties, 4:2141
stress, 4:2151
substance abuse, 4:2161
Swedish massage, 4:2172
Tellington touch as, 1:184
temporomandibular joint syndrome, 4:2207
therapeutic touch as, 4:2222
Tourette syndrome, 4:2249
trichotillomania, 2:984
uterine cancer, 4:2300
wheezing, 4:2372
yoga as, 4:2409

Relaxed breathing, defined, 1:332
See also Breath therapy

Release-only relaxation, 3:1905

Relenza (zanamavir), for influenza, 2:1188, 1189

Relieving Pain at Home (Fitzgerald and Bowers), 3:1896

Rem (radiation unit), 3:1872

REM sleep. *See* Rapid eye movement (REM) sleep

Remicade (infliximab), 1:97; 2:1253

Remifemin, 1:270; 3:1475

Renal abscesses, 2:1272, 1274

RenewIn joint care formula, 3:1685

Reno, Janet, 3:1432

Repeated transcranial magnetic stimulation (rTMS), 1:258; 3:1409

Repeinoe maslo, 1:359

Repetition strain injury
bursitis and, 1:363, 365
carpal tunnel syndrome and, 1:408, 409
Hellerwork for, 2:1030
homeopathy for, 2:1094
massage therapy for, 3:1440
pinched nerves and, 3:1752, 1754
reflexology for, 3:1898
Rolfing for, 3:1941
tennis elbow and, 4:2209, 2210, 2211

Repetitive behavior, autism and, 1:189

Report About a Peculiar Connection Between the Beestings and Rheumatism (Terc), 1:119; 4:2330

Reproductive system
alcohol effect on, 1:42–43
applied kinesiology and, 1:126
sepia for, 4:2028

Reproductive system disorders
black cohosh for, 1:269–271
chasteberry for, 1:459
dong quai for, 2:718
fish oil for, 2:842
gentiana for, 2:916
goldenseal for, 2:948
indigestion and, 2:1168
Kampo medicine for, 2:1257
prince's pine for, 3:1815
psoralea seeds for, 3:1834
white peony root for, 4:2374
See also specific disorders

Requena, Yves, 1:279

Requip (ropinirole), for sleep disorders, 4:2086

REs. *See* Retinol equivalents

Rescue Remedy, 1:*198;* 3:**1908–1910,** 1909*t*
colic, 1:568
overview, 1:197; 2:851
pregnancy, 3:1800
shingles, 4:2053

Research Institute for Fragrance Materials, 1:320

Reserpine, for Raynaud's syndrome, 3:1887

Residual schizophrenia, 4:1992

Resistance, drug. *See* Drug resistance

Resistance exercise, 2:805
See also Weight training

RESPeRATE, for hypertension, 2:1134–1135

Respiratory sensors, for biofeedback, 1:244

Respiratory system
applied kinesiology and, 1:126
overview, 3:1769–1770
t'ai chi for, 4:2193
vitamin C for, 4:2343

Respiratory system diseases
Allium cepa for, 1:58
American ginseng for, 2:924
apricot seed for, 1:129
arsenicum album for, 1:144
aucklandia for, 1:178
bitter melon for, 1:264
bloodroot, 1:297
bryonia for, 1:346
chelidonium for, 1:466
chickweed for, 1:480
Chinese thoroughwax for, 1:504
chrysanthemum for, 1:536
coltsfoot for, 1:586
cough from, 1:618
croup and, 1:636
essential oils for, 2:788, 789
eucalyptus for, 2:793, 794
feverfew for, 1:536
fritillaria for, 2:869, 870
garlic for, 2:896
glucosamine for, 2:936
goldenseal for, 2:948
grape seed extract for, 2:961
hibiscus for, 2:1063
homeopathy for, 2:1086
horse chestnut for, 2:1105
horsetail for, 2:1107
hyssop for, 2:1152
Iceland moss for, 2:1155
khella for, 2:1271
lobelia for, 3:1353–1354
lomatium for, 3:1356
lycopodium for, 3:1380
magnolia for, 3:1410
marsh mallow for, 3:1435
MSM for, 3:1530
neem for, 3:1588
ophiopogon for, 3:1637
oregano for, 3:1639
ox-eye daisy for, 1:536
peppermint for, 3:1728, 1729, 1730–1731
pinellia for, 3:1757
pleurisy from, 3:1766
raspberry for, 3:1883
schisandra for, 4:1990
slippery elm for, 4:2088
steam inhalation for, 2:1122
sunflower seeds for, 1:536, 537
thyme for, 4:2237
usnea for, 4:2298
yerba santa for, 4:2408
See also Upper respiratory infections

Respirin Corp., 2:790

Rest
laryngitis, 3:1310
mononucleosis, 3:1514
morning sickness, 3:1517
pelvic inflammatory disease, 3:1724
rheumatoid arthritis, 3:1927

REST (Restricted Environmental Stimulation Therapy), 4:*2021,* 2021–2024

Rest, Ice, Compression and Elevation (RICE), 4:2128

Restless leg syndrome, 3:**1910–1912**
defined, 4:2083
insomnia and, 2:1194
Rosen method for, 3:1953
treatment, 4:2086

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Reston, James, 1:13, 16
Restricted Environmental Stimulation Therapy (REST), 4:*2021,* 2021–2024
Restricting type anorexia nervosa, 1:98
Restriction fragment length polymorphism analysis, for tuberculosis, 4:2276
Resveratrol, 3:**1912–1914**
for boils, 1:303
in grape seed extract, 2:960, 962
in grape skin, 2:964
in yucca, 4:2418
Retained placenta, breast-feeding and, 1:328, 329
Retina, 3:1554
Retinal artery/vein occlusions, 3:1918
Retinal detachment, 3:*1915,* **1915–1916**
Retinal pigment epithelial detachment, 3:1400
Retinitis pigmentosa
lutein for, 3:1374
night blindness and, 3:1603, 1604
Retinoids, for rosacea, 3:1946
Retinol. *See* Vitamin A
Retinol equivalents (REs), 1:228; 4:2333
Retinopathy, 3:*1917,* **1917–1920**
bilberry for, 1:238, 239
grape seed extract for, 2:961
See also Diabetic retinopathy
Retropharyngeal abscesses, 1:1
Rett syndrome, bruxism and, 1:343
Reuter, Louis, 1:252
Reverse seasonal affective disorder, 4:2006
Revici therapy, 3:1492
Reye's syndrome
aspirin, 4:2377
chickenpox, 1:478
influenza, 2:1187, 1188
Rh factor, cerebral palsy and, 1:441, 445
Rhamnus species. *See* Buckthorn
Rhein, in fo ti, 2:854
Rheum species. *See* Rhubarb root
Rheumatic fever, 2:1175; 3:**1920–1924;** 4:2147–2148
Rheumatic heart disease, 4:2147–2148
Rheumatism
ashwaganda for, 1:152
boswellia for, 1:314
chickweed for, 1:480
chicory for, 1:481
coix for, 1:557
colchicum for, 1:560
dandelion for, 2:659
devil's claw for, 2:680
ferrum phosphoricum for, 2:828
goldenrod for, 2:947
gravel root for, 2:797
homeopathy for, 2:1094
horsetail for, 2:1106
hyssop for, 2:1152
juniper for, 2:1250
kava kava for, 2:1260, 1261
kelp for, 2:1269
lemongrass for, 3:1329, 1330
lomilomi for, 3:1358
lycopodium for, 3:1380
magnolia for, 3:1410
marijuana for, 3:1432
mistletoe for, 3:1510
nettle for, 3:1591
nutmeg for, 3:1610
oregano for, 3:1639
phytolacca for, 3:1748
prince's pine for, 3:1814
red cedar for, 3:1889
rhus toxicodendron for, 3:1936
rosemary for, 3:1951
St. John's wort for, 4:2132
stevia for, 4:2138
sulfur for, 4:2163
thuja for, 4:2231
thyme for, 4:2236
Tibetan medicine for, 4:2239
tui na massage for, 4:2257
white willow for, 4:2376
Rheumatism weed. *See* Prince's pine; Wintergreen
Rheumatoid arthritis, 3:*1924,* **1924–1928,** 1925*t*
apitherapy for, 1:120, 121–122; 4:2331
black currant seed oil for, 1:275
borage for, 1:310
bromelain for, 1:338
cat's claw for, 1:422
colostrum for, 1:583
copper for, 1:605
craniosacral therapy for, 1:627
Dead Sea bathing for, 4:2101
devil's claw for, 2:680
fish oil for, 2:841
gamma-linolenic acid for, 2:882, 884
Gerson therapy for, 2:919
green tea for, 2:968
guggul for, 2:970
homeopathy for, 2:1086
horsetail for, 2:1107
juniper for, 2:1250
Kampo medicine for, 2:1257
kelp for, 2:1269
knee pain and, 2:1281
kola nuts for, 2:1287
lipase for, 3:1350
manganese for, 3:1423
Mexican yam for, 3:1495, 1496
MSM for, 3:1530
neck pain and, 3:1584, 1586, 1587
neem for, 3:1588
omega-3 fatty acids for, 3:1631
oxygen therapy for, 3:1680
pantothenic acid for, 3:1700
selenium for, 4:2011
t'ai chi for, 4:2193
tea tree oil for, 4:2198
thunder god vine for, 4:2234
tomatoes and, 3:1379
turmeric for, 1:642; 4:2280
urine therapy for, 4:2295
veganism for, 4:2320
vegetarianism for, 4:2326
white willow for, 4:2376
yucca for, 4:2418
zinc for, 4:2421
See also Juvenile rheumatoid arthritis
Rheumatoid factor, 3:1926
Rheumatoid nodules, 3:1926
Rheumatoid spondylitis. *See* Ankylosing spondylitis
Rheumatrex (methotrexate), 2:1253; 3:1837
Rhinitis, 3:*1928,* **1928–1930**
grapefruit seed extract for, 2:965
scallion for, 4:1984
Rhinophyma, from rosacea, 3:1944
Rhinovirus infections. *See* Common cold
Rhizoma atractylodis. See Atractylodes
Rhizoma cyperi. See Cyperus
Rhizoma dioscoreae. See Chinese yam
Rhizoma dryopteris crassirhizomae, for worms, 4:2393
Rhizoma imperatae. See Bai Mao Gen
Rhizoma phragmitis. See Lu Gen
Rhizoma zingiberis. See Ginger
Rhoden, Errol G., 2:1291
Rhodiola rosea, 1:72; 3:**1930–1932**
Rhodopsin, night blindness and, 3:1602
Rhubarb root, 3:**1932–1935,** *1933*
in essiac tea, 2:790, 791
for irritable bowel syndrome, 2:1220
for worms, 4:2393
Rhus aromatica. See Sumac
Rhus toxicodendron, 3:**1935–1937**
for allergies, 1:55
blisters from, 1:*290*
for bursitis, 1:364
for carpal tunnel syndrome, 1:409
for chickenpox, 1:478
contact dermatitis and, 1:602
for genital herpes, 2:912
in homeopathy, 2:1084*t,* 1090
for influenza, 2:1188
for knee pain, 2:1283
for low back pain, 3:1365
mugwort for, 3:1533
plantain for, 3:1764
rashes and, 3:*1880,* 1882

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

for rheumatoid arthritis, 3:1926
sheep sorrel for, 4:2042
for shingles, 4:2053
for sprains and strains, 4:2128
tea tree oil for, 4:2198
for tonsillitis, 4:2245
witch hazel for, 4:2388
yellow dock for, 4:2406
Rhyne, Janie, 1:146
Rhythm therapy, 1:257
Rhythmic system (anthroposophical medicine), 1:103
Ribes nigrum. *See* Black currant seed oil
Ribgrass/wort. *See* Plantain
Riboflavin, 3:**1937–1940,** *1938,* 1938*t*
fatigue, 2:816
headaches, 2:1004
hypothyroidism, 2:1150
infertility, 2:1180
Ménière's disease, 3:1467
migraine, 3:1500, 1501, 1938; 4:2338
veganism and, 4:2322
Riboflavin deficiency, 3:1939
RICE (Rest, Ice, Compression and Elevation), 4:2128
Rice, R., 2:1172
Rice bran, 3:1334
See also Gamma-oryzanol
Ricin, in castor oil, 1:413–414
Ricinus communis. *See* Castor oil
Rickets, 1:379; 4:2346
RID Pure Alternative, for lice infestations, 3:1338
Rifampin, for tuberculosis, 4:2277
Rifximin, for diarrhea, 2:698
Riley, Shelby, 3:1897
Riley, Thomas, 4:2197
Riluzole, for Lou Gehrig's disease, 3:1362
Rimantadine, for influenza, 2:1188, 1189
Ringworms
boswellia for, 1:314
cnidium seeds for, 1:551
goldenseal for, 2:948
lobelia for, 3:1355
manuka honey for, 3:1428
neem for, 3:1588
tea tree oil for, 4:2198
thuja for, 4:2231
Rinne tests, for tinnitus, 4:2242
Ripplegrass. *See* Plantain
Risendronate, for osteoporosis, 3:1666
Risperidone, for Tourette syndrome, 4:2250
Risus sardonicus, 4:2215
River horsetail. *See* Horsetail
rLung (Tibetan medicine), 4:2239
Robbins, Anthony, 3:1598
Roberts, Seth, 4:2037–2039, 2040
Robinson, Arthur, 3:1650
Rocephin. *See* Ceftriaxone
Rock candy powder, for vomiting, 4:2359
Rock on Tai Mountain decoction, for pregnancy, 3:1799
Rock parsley. *See* Parsley
Rock rose
as flower remedy, 2:850*t*, 852
in Rescue Remedy, 3:1908, 1909
in Rescue Sleep, 4:2085
Rock water flower essence, 1:199; 2:850*t*, 852
Rock wrack. *See* Bladderwrack
Rockefeller Foundation, 3:1453
Rockweed. *See* Bladderwrack
Rocky Mountain Institute of Yoga and Ayurveda, 3:1691
Rodenticides, poisoning and, 1:469
Rodriguez-Felix, Armida, 3:1810, 1811
Rods (eye), night blindness and, 3:1602
Roentgen (radiation unit), 3:1872
Roentgen, Wilhelm Conrad, 3:1872
Rogaine (minoxidil), for hair loss, 2:984
Rogers, Carl Ransom, 3:1845, 1848
Rogers, J. Smyth, 3:1382
Rolf, Ida, 1:161, 162; 2:1030; 3:1941
Rolf-Aston Structural Patterning, 1:162
Rolf Institute of Structural Integration, 3:1941, 1943
Rolfing, 3:**1940–1943,** *1941*
corns and calluses, 1:610
Hellerwork and, 2:1030, 1031, 1032
knee pain, 2:1283
Rolfing: The Integration of Human Structures (Rolf), 3:1941, 1943
Rolfing movement integration, 3:1525, 1942
Rolfing rhythms, 3:1942
Roman chamomile, 1:454
See also Chamomile
Rome criteria, for irritable bowel syndrome, 2:1219, 1220
Root canals, health risks of, 2:1075, 1078
Root planing, for gum diseases, 2:978
Ropinirole, for sleep disorders, 4:2086
Rosa, Emily, 4:2223
Rosa species. *See* Rose; Rose hips
Rosacea, 3:**1943–1947,** *1944*
Rose
in aromatherapy, 3:1948
insomnia, 2:1196
itching, 2:1229
menstruation disorders, 3:1483
night blindness, 3:1603
sleep disorders, 4:2085
vomiting, 4:2359
Rose (color), emotional properties, 1:184
Rose damascena, for emphysema, 2:755
Rose elder. *See* Cramp bark
Rose geranium, 1:648; 2:877
Rose hips, 3:*1947,* **1947–1949**
Rose of Sharon. *See* Hibiscus
Rose root. *See* Rhodiola rosea
Roselle. *See* Hibiscus
Rosemary, 3:**1949–1952,** *1950*
aromatherapy uses, 1:137*t*, 139
asthma, 1:157
binge eating disorder, 1:241
bipolar disorder, 1:257
body odor, 1:301
cold sores, 1:563
constipation, 1:599
cuts and scratches, 1:648
epilepsy and, 2:777
fatigue, 2:816, 817
headaches, 2:1004
holistic dentistry and, 2:1077
in hydrotherapy, 2:1122
hyperopia, 2:1127
as insect repellent, 2:1230
jaundice, 2:1236
juvenile rheumatoid arthritis, 2:1253
laryngitis, 3:1309
low back pain, 3:1365
menstruation disorders, 3:1482
migraine, 3:1500
multiple sclerosis, 3:1543
obsessive-compulsive disorder, 3:1629
osteoarthritis, 3:1656
ovarian cysts, 3:1676
pleurisy, 3:1768
postpartum depression, 3:1781
premenstrual syndrome, 3:1805, 1806
rheumatic fever, 3:1922
rheumatoid arthritis, 3:1926
sinus infections, 4:2069
stomachaches, 4:2144
wheezing, 4:2372
Rosen, Marion, 3:1952, 1953
Rosen method, 3:1525, **1952–1953**
Rosenwurz. *See* Rhodiola rosea
Rosmarinus officinalis. *See* Rosemary
Rossman, Martin L., 2:973
Ross's syndrome, 1:22
RotaTeq vaccine, 2:908
Rotation diet, 2:678, 766
Rotator cuff injuries, Russian massage for, 3:1959
Rotaviruses
diarrhea from, 2:696
gastroenteritis from, 2:906
vaccine for, 2:908
Rotenone, in Jamaican dogwood, 2:1231

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Roth, Gabrielle, 3:1525
Rother. *See* Lysimachia
Rottino, Antonio, 2:1158
Rou Gui. *See* Cinnamon bark
Round-leaf plantain. *See* Plantain
Roundworms, 4:2392, 2393, 2395
Royal jelly, 3:**1953–1955,** *1954*
rTen-byed (Tibetan medicine), 4:2240
rTMS (repeated transcranial magnetic stimulation), 1:258; 3:1409
Rubber band ligation, for hemorrhoids, 2:1034
Rubber plant, for warts, 4:2363
Rubella, 3:*1955,* **1955–1957**
  hearing loss and, 2:1008
  lazy eye and, 3:1314
Rubenfeld, Ilana, 3:1957–1958
Rubenfeld synergy, 3:**1957–1958**
Rubeola. *See* Measles
Rubik, Beverly, 2:762
Rubus ideaeus. See Raspberry
Rudbeckia. *See* Echinacea
Ruddes. *See* Calendula
Rudin, Donald, 3:1632
Rue. *See* Ruta
Rumex species. *See* Sheep sorrel; Yellow dock
Run-by-the-ground. *See* Pennyroyal
Running, heel spurs and, 2:1030
Runny nose. *See* Rhinitis
Rupprecht, Charles E., 3:1869
Ruptured disks. *See* Herniated disks
Ruscogenin, 1:366
Ruscus aculeatus. See Butcher's broom
Russian massage, 3:**1959–1960**
Russian Ministry of Health, 3:1764
Ruta, 3:*1960,* **1960–1962**
  astigmatism, 1:160
  carpal tunnel syndrome, 1:409
  in homeopathy, 2:1084*t*
  hyperopia, 2:1127
  low back pain, 3:1365
  sciatica, 4:2002
  sprains and strains, 4:2128
  tennis elbow, 4:2213
Rutin, 1:246; 2:933; 3:1919
Rwandan coleus, 1:565
Rynchophylline, 1:422

S

S. aureus. See Staphylococcus aureus
S-adenosyl-methionine. *See* Ademetionine
Sabadilla
  hay fever, 2:999
  sneezing, 4:2096
  worms, 4:2393
Sabin, Albert, 1:583
Saccharin toxicity, 2:702*t*
Saccharomyces boulardii, 2:698; 3:1818; 4:**1963–1965**
Saccharomyces cerevisiae. See Brewer's yeast
Sacral nerve stimulation, for urinary incontinence, 4:2293
Sacro-occipital technique. *See* Craniosacral therapy
SAD. *See* Seasonal affective disorder
Sad tree, for sciatica, 4:2002
Safe sex practices
  AIDS, 1:39
  chlamydia, 1:514–515
  genital herpes, 2:912
  genital warts, 2:915
  gonorrhea, 2:951
SafeTek, for lice infestations, 3:1338
Safety concerns
  Alzheimer's disease, 1:68; 2:666
  cuts and scratches, 1:649
  food poisoning, 2:862
  See also Occupational factors
Safflower flower, 4:**1965–1967,** *1966*
Saffron, 1:265; 4:**1967–1969,** *1968*
Safrole toxicity, 4:1977, 2390
Sage, 4:**1969–1971**
  aromatherapy uses, 1:137*t,* 139
  body odor, 1:301
  boils, 1:303
  childbirth, 1:485
  cold sores, 1:563
  common cold, 1:591
  emphysema, 2:754
  epilepsy and, 2:777
  food poisoning, 2:861
  fungal infections, 2:877
  gum diseases, 2:978
  in hydrotherapy, 2:1121
  as insect repellent, 2:1230
  itching, 2:1229
  knee pain, 2:1282
  laryngitis, 3:1308
  menopause, 3:1475
  menstruation disorders, 3:1483
  rashes, 3:1882
  sore throat, 4:1988, 2106
  strep throat, 4:2148
  worms, 4:2393
Sage of Bethlehem. *See* Spearmint
Saha srara, 1:453
Sahelian, Ray, 2:683
Saikogenin, 1:504
Sailor's tobacco. *See* Mugwort
Sakha-bhava bhakti, 1:236
Salagen (pilocarpine hydrochloride), 2:721, 934
Salai guggul. *See* Boswellia
Salicaire. *See* Lysimachia
Salicin, in white willow, 4:2376
Salicylic acid
  in black haw, 1:277
  for dandruff, 2:661
  hearing loss and, 2:1008
  for skin care, 1:231–233
  for warts, 4:2363
  from white willow, 4:2376
Salidago virga, for chlamydia, 1:514
Saliva, for warts, 4:2363
Saliva sample testing, 4:**1971–1975,** *1972*
  hot flashes and, 2:1110, 1112
  hypercortisolemia, 2:1125
  lung cancer, 3:1370
  natural hormone replacement therapy and, 3:1574
  tuberculosis, 4:2276
Salivary ferning, 4:1972
Salivary glands
  dry mouth, 2:720
  mumps, 3:1545, 1546
  rabies, 3:1870
  Sjögren's syndrome, 4:2071
Salix alba. See White willow
Sallol. *See* Wintergreen
Salmeterol, for chronic bronchitis, 1:341
Salmonella poisoning
  garlic for, 2:895
  gastroenteritis from, 2:907
  grapefruit seed extract for, 2:965
  oregano for, 3:1640
  overview, 2:858, 859*t,* 860*t*
Saloop. *See* Sassafras
Salpingitis, 3:1721, 1723, 1725
Salsify. *See* Comfrey
Saltiness
  Ayurvedic medicine, 1:194–195
  traditional Chinese medicine, 1:503; 2:1043
Saltwater baths, 4:2101
Saltwater gargles
  health benefits, 4:2101
  laryngitis, 3:1309
  sore throat, 4:2106
  strep throat, 4:2148, 2149
Saltwater irrigation, for sinus infections, 4:2069
Salvia species. *See* Sage
Sambucus ebulus, 2:748
Sambucus nigra. See Elder flower
SAMe. *See* Ademetionine
Sampson root. *See* Echinacea
Samst, Jonathan, 1:265
Samueli Institute for Information Biology, 2:1162
San people, 2:1099
San qi. *See* Notoginseng root
Sandalwood
  bronchitis, 1:340
  cuts and scratches, 1:648
  dizziness, 2:714
  epididymitis, 2:775

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

holistic dentistry and, 2:1077
in hydrotherapy, 2:1122
laryngitis, 3:1308
Ménière's disease, 3:1466
menstruation disorders, 3:1483
premenstrual syndrome, 3:1806
sexual dysfunction, 4:2033
sore throat, 4:2106
strep throat, 4:2148
vomiting, 4:2359
Sandimmune. *See* Cyclosporine
Sang Ju Gan Mao, for common cold, 1:591
Sanguinaria canadensis. See Bloodroot
Sanguinarine, 1:297
Sanguinary. *See* Shepherd's purse; Yarrow
Santalum album. See Sandalwood
Santonica. *See Artemisia cina*
Saponin glycosides, in alfalfa, 1:50
Saponin triterpenoid glycosides. *See* Ginsenocides
Saposhnikovia divaricata, for tetanus, 4:2216
Sappho, 3:1947
Sarafem (fluoxetine), for premenstrual syndrome, 3:1806
Sarcomas, defined, 1:385
Sarcoptic acariasis. See Scabies
Sargassum seaweed, 4:**1975–1977**
SARS (severe acute respiratory syndrome), 1:541; 3:1771–1772
Sarsaparilla
juvenile rheumatoid arthritis, 2:1253
premenstrual syndrome, 3:1805
psoriasis, 3:1837
UTIs, 1:285
Sarveroside, 2:707
Sassafras, 2:674; 3:1882; 4:*1977,* **1977–1978**
Satin flower. *See* Chickweed
Satsuma. *See* Tangerine peel
Saturated fats
defined, 2:784
inflammation and, 1:107
lacto-ovo vegetarianism and, 3:1302
multiple sclerosis and, 3:1542, 1543
in Ornish diet, 3:1645–1646
vegetarianism and, 4:2327
Sauda (unani-tibbi), 4:2289
Saussurea costus. See Aucklandia
Savio, Yvonne, 3:1812
Saw palmetto, 4:**1978–1981,** *1979*
androstenedione and, 1:79
asthma, 1:156
chlamydia, 1:514
epididymitis, 2:*773,* 774
hair loss, 2:984
impotence, 2:1165
infertility, 2:1181
polycystic ovarian syndrome, 3:1779
prostate enlargement, 1:26; 3:1827, 1831, 1832; 4:1978–1979, 1980–1981
Sawa wasabi. *See* Wasabi
Sawyer, Diane, 4:2037
Saxafrax/saxifrax. *See* Sassafras
Scabies, 4:*1981,* **1981–1983,** *1982*
cnidium seeds for, 1:551
neem for, 3:1588
sulfur for, 4:2163
tea tree oil for, 4:2198
turmeric for, 1:642
Scalded skin syndrome, 4:2135
Scalds. *See* Burns
Scaldweed. *See* Cuscuta
Scallion, 4:*1983,* **1983–1985**
Scalp psoriasis, 3:1835
SCAP ligands, 1:520–521
Scarlet fever, 4:**1985–1988,** *1986,* 1987, 2106–2107, 2147
Scars
apitherapy for, 4:2331
neural therapy and, 3:1593, 1594
SCEH (Society for Clinical and Experimental Hypnosis), 2:1143
Scented mayweed. *See* Chamomile
Schecter, Steve, 1:215
Scheduling problems, with breast-feeding, 1:328, 329
Scheel, John H., 3:1580
Schemas, 1:219
Schereschewsky, J. W., 2:699
Schindler, Joseph, 2:1120
Schisandra, 4:**1988–1991,** *1989*
common cold, 1:591
hyperopia, 2:1127
influenza, 2:1188
Schistosomiasis, grains-of-paradise for, 2:960
Schizandra. *See* Schisandra
Schizophrenia, 4:1991–1999, **1991–1999**
ademetionine for, 3:1493
biofeedback for, 1:245
Gerson therapy for, 2:919
music therapy for, 3:1552
omega-3 fatty acids for, 3:1632
pyridoxine for, 3:1857
Schloss tea. *See* Marsh mallow
Schneider, Kurt, 4:1994
Schneiderian symptoms of schizophrenia, 4:1994
School lunch nutrient recommendations, 1:487*t;* 4:2201–2202
Schools, childhood obesity and, 1:491; 4:2201–2202
Schoop, Trudi, 2:656
Schreiber, Jon, 1:333, 335
Schroeder-Sheker, Therese, 3:1553
Schuessler, W. H., 1:433
Schuessler salt therapy. *See* Cell salt therapy
Schumacher criteria, for multiple sclerosis, 3:1542
Schweitzer, Albert, 2:895, 919
Sciatica, 4:*2000,* **2000–2003**
feverfew for, 2:833
lemongrass for, 3:1329, 1330
low back pain and, 3:1363, 1364, 1366
lycopodium for, 3:1380
osteopathy for, 3:1658
rhus toxicodendron for, 3:1937
ruta for, 3:1961
thyme for, 4:2236
trigger point therapy for, 4:2270
tui na massage for, 4:2257
Science (journal), 2:*1280*
Science and Health with Key to the Scriptures (Eddy), 1:526, 527; 3:1793
Scilla maritima, cardiac glycosides from, 2:707
Scleranthus flower essence, 1:198; 2:850*t,* 852
Sclerodactyly, 3:1887
Scleroderma
colchicum for, 1:560
gamma-linolenic acid for, 2:882
gotu kola for, 2:954
MSM for, 3:1530
Raynaud's syndrome and, 3:1885–1886
vitamin D for, 4:2347
Sclerotherapy, 3:1823; 4:2317
Sclerotium omphaliae, for worms, 4:2393
Sclerotium Poriae Cocos, 1:174
Scoke. *See* Phytolacca
Scoliosis, 1:444; 4:**2003–2006,** *2004*
Scolopendra, for whooping cough, 4:2380
Scopolamine
from belladonna, 1:221
for Ménière's disease, 3:1467
for motion sickness, 3:1522
Scopoletin, in black haw, 1:277
Scotch pine
bronchitis, 1:340
fatigue, 2:816
Scrofula
fritillaria for, 2:870
pinellia for, 3:1758
sargassum seaweed for, 4:1975, 1976
Scrophularia root, for ovarian cancer, 3:1671
Scruf pea. *See* Psoralea seeds
Scrupulosity, 3:1628
Scullcap. *See* Skullcap

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Scurvy
hibiscus for, 2:1064
pine bark extract for, 2:963; 3:1755
sheep sorrel for, 4:2042
spearmint for, 4:2119
thuja for, 4:2231
vitamin C for, 4:2341
Scute. *See* Chinese skullcap
Scutellaria baicalensis. *See* Chinese skullcap
Scutellaria lateriflora. *See* Skullcap
SE (Somatic Experiencing), for post-traumatic stress disorder, 3:1785
Sea bands
morning sickness, 3:1517
vomiting, 4:2359
Sea holly, for whooping cough, 4:2379
Sea oak. *See* Bladderwrack
Sea vegetables, in macrobiotic diet, 3:1397
Seafood
in anti-inflammatory diet, 1:107
food poisoning and, 2:858, 858*t*
Sears, Barry, 4:2423, 2424, 2425
Seasonal affective disorder (SAD), 2:671; 3:1344, 1345, 1346; 4:**2006–2009**
Seasonal changes
bipolar disorder, 1:256
common cold, 1:589
macrobiotic diet, 3:1397
Seaweed. *See* Bladderwrack; Kelp; Sargassum seaweed
Sebaceous glands, acne and, 1:6
Seborrheic dermatitis
biotin for, 1:253
cradle cap, 1:619–621, *620*
dandruff, 2:*660*, 660–662
defined, 2:673
diaper rash, 2:694, 695
Sebum, jojoba oil and, 2:1242
Second-degree burns, defined, 1:361
See also Burns
Second-degree sprains and strains, 4:2127
Secondary amenorrhea, 1:70; 3:1480
See also Amenorrhea
Secondary amyloidosis, 1:560
Secondary bacterial infections
bronchitis, 1:339, 340
common cold, 1:589, 590
influenza, 2:1187
Secondary diabetes, 2:687
Secondary dysmenorrhea, 2:729; 3:1480
See also Dysmenorrhea
Secondary enuresis, 1:212–213
Secondary glaucoma, 2:932
See also Glaucoma
Secondary headaches, 2:1001
Secondary lung cancer, 3:1368
See also Lung cancer
Secondary osteoarthritis, 3:1655
See also Osteoarthritis
Secondary syphilis, 4:2181
See also Syphilis
Secondhand smoke
health risks, 4:2091, 2092
lung cancer and, 3:1368, 1372
Secretory phase of menstruation, 1:71; 3:1479
Sedatives
arka, 1:133
ashwaganda, 1:152
atractylodes, 1:173
biota, 1:251
bugle weed, 1:351
catnip, 1:419
chamomile, 1:455
corydalis, 1:615
cyperus, 1:651
evening primrose oil, 2:800
ganoderma, 2:888
gastrodia, 2:905
hops, 2:1100
for hypercortisolemia, 2:1125
for insomnia, 2:1196
lavender, 3:1311, 1312
lemon balm, 3:1326, 1327
lemongrass, 3:1328, 1329
lycopus, 3:1383
lysimachia, 3:1390
marijuana, 3:1432
mistletoe, 3:1510, 1511
motherwort, 3:1518
mugwort, 3:1533
noni, 3:1605, 1606
nutmeg as, 3:1610
ophiopogon, 3:1637
passionflower, 3:1714, 1715, 1716
pennyroyal, 3:1726
peppermint, 3:1731
shiatsu as, 4:2047
skullcap, 4:2075
for sleep disorders, 4:2086
valerian, 4:2312
wild cherry, 1:475
Sedum rhodiola. *See* Rhodiola rosea
Seed of Horus. *See* Horehound
Seeds. *See* Nuts and seeds
Seishi Bosatsu, 3:1863
Seiyo wasabi. *See* Wasabi
Seizures
arka for, 1:133
cerebral palsy and, 1:444
cicada for, 1:541
first aid for, 2:779
gastrodia for, 2:904, 905
lachesis for, 3:1300
magnesium for, 3:1405
marijuana for, 3:1432
medium-chain triglycerides for, 3:1457
memory loss and, 3:1462
passionflower for, 3:1715
skullcap for, 4:2075
tetanus and, 4:2215
types, 2:776
white peony root for, 4:2374
See also Epilepsy
SELECT (Selenium and Vitamin E Cancer Prevention Trial), 1:110
Selective serotonin reuptake inhibitors (SSRIs)
anxiety, 1:116
binge eating disorder, 1:241
bipolar disorder, 1:258
depression, 2:671
dizziness, 2:714
headaches, 2:1005
hot flashes, 2:1111
migraine, 3:1500
obsessive-compulsive disorder, 3:1629
panic disorders, 3:1699
phobias, 3:1744
post-traumatic stress disorder, 3:1786
postpartum depression, 3:1781–1782
premenstrual dysphoric disorder, 3:1483
premenstrual syndrome, 3:1807
seasonal affective disorder, 4:2008
Selegiline, 1:69; 3:1709
Selenium, 4:**2009–2013**, 2009*t*
aging, 1:30
AIDS, 1:36
as antioxidant, 1:109*t*, 110, 111, 112
asthma, 1:156
cataracts, 1:417
cervical dysplasia, 1:451
dementia, 2:665
ear infections, 2:735
fatigue, 2:816
fibrocystic breast disease, 2:837
food sources, 1:109*t*
gout, 2:957
gum diseases, 2:977
hay fever, 2:998
heavy metal poisoning, 2:1027
hyperopia, 2:1127
infertility, 2:1180
influenza, 2:1188
ischemia, 2:1225
jet lag, 2:1238
juvenile rheumatoid arthritis, 2:1253
leukemia, 3:1333
lung cancer, 3:1371
multiple sclerosis, 3:1543
osteoarthritis, 3:1656
ovarian cancer, 3:1670
Parkinson's disease, 3:1708
peptic ulcers, 4:2285
retinopathy, 3:1919
rheumatoid arthritis, 3:1926
seniors, 4:2017

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

skin cancer, 4:2074
smoking cessation, 4:2093
systemic lupus erythematosus, 4:2188
toxicity, 1:463
as trace mineral, 1:462–463
uterine cancer, 4:2299
Selenium and Vitamin E Cancer Prevention Trial (SELECT), 1:110
Selenium deficiency, 4:2010
Selenium sulfide shampoos, 2:661–662, 674
Self-Breema exercises, 1:334
Self care
with acupressure, 1:14–15
for asthma, 1:158
with Cayce systems, 1:424
for epididymitis, 2:775
with reiki, 3:1901
for toothaches, 4:2246
Self-discovery, art therapy and, 1:146
Self-examination, for breast cancer, 1:323
Self-experimentation, Shangri-la diet and, 4:2037–2039, 2040
Selver, Charlotte, 3:1526
Selye, Hans, 3:1505; 4:2102, 2150
Semen Abutili seu Malvae, for kidney disorders, 2:1274, 1278
Semen analysis, 2:1179
Semen arecae, for worms, 4:2393
Semen benincasae hispidae, 1:77
Semen pharbitidis, for worms, 4:2393
Semen plantaginis, for kidney disorders, 2:1274, 1278
Sementah. *See* Mangosteen
Semi-essential amino acids, 1:130
Semitake. *See* Cordyceps
Semtah. *See* Mangosteen
Sen (energy lines), Thai massage and, 4:2219
Senecio aureus, for endometriosis, 2:760
Senega root, in Sun's soup, 4:2171
Senile plaques, 1:65; 2:664
Senility. *See* Dementia
Senior nutrition, 4:**2013–2018,** 2013*t*, 2014*t*
Senna, 1:267, 599; 4:**2018–2020,** *2019*
Sense-nerve system (anthroposophical medicine), 1:103
Senshinren. *See* Andrographis
Sensitization
BHAs, 1:233
botanical medicines, 1:320
See also Photosensitizing compounds
Sensors, biofeedback, 1:242, 244
Sensory awareness
Alexander technique, 1:47, 48
Feldenkrais method, 2:820
as movement therapy, 3:1526
Sensory deprivation, 4:*2021,* **2021–2024**
Sensory hearing loss, 2:1007, 1008, 1009
Sensory integration, 4:2024–2025
Sensory integration disorder, 4:**2024–2026**
Sensory Integration International, 4:2025
Sensory integration training, 1:190
Sensory-motor amnesia, 4:2102
Sensory organs
applied kinesiology and, 1:126
multiple sclerosis and, 3:1542
schisandra for, 4:1990
Sensory overload, memory loss and, 3:1461–1462
Sensory seizures, 2:776
Sepia, 4:**2026–2029,** *2027*
endometriosis, 2:760
in homeopathy, 2:1084*t*
menopause, 3:1476
menstruation disorders, 3:1483
premenstrual syndrome, 3:1806
vaginitis, 4:2309
Sepsis. *See* Blood poisoning
Septic abscesses, 1:1
Septic bursitis, 1:365
Septic shock, 1:294
Septicemia. *See* Blood poisoning
Serenoa repens. See Saw palmetto
Serine, 1:74
Serology. *See* Blood tests
Serotonin
bulimia nervosa, 1:353
eating behavior, 3:1624
5-HTP, 2:843
inositol, 2:1192
Serotonin dopamine antagonists, 4:1998
Serotonin syndrome, 2:845; 4:2132
Serra, Junipero, 2:1241
Sertraline
obsessive-compulsive disorder, 3:1629
panic disorders, 3:1699
phobias, 3:1744
post-traumatic stress disorder, 3:1786
premenstrual syndrome, 3:1807
Serum hepatitis. *See* Hepatitis
Service dogs, for diabetes, 2:688
Sesame oil, 4:*2029,* **2029–2031**
cradle cap, 1:620
Ménière's disease, 3:1466
menopause, 3:1475
rheumatoid arthritis, 3:1926
sleep disorders, 4:2085
Sesquiterpene lactones, 1:135, 306
Set point theory, 4:2038, 2039
Setewale. *See* Valerian
Seven Countries Study, 3:1453
Seventh Day Adventists, vegetarianism and, 3:1301, 1303; 4:2322, 2326
Severe acute respiratory syndrome (SARS), 1:541; 3:1771–1772
Severent Diskus (salmeterol), 1:341
Sex hormone-binding globulin, 3:1777, 1779
Sex hormones, saliva sampling and, 4:1972, 1973
See also specific hormones
Sex therapy, 4:2033
Sexual arousal disorder, 4:2031
Sexual behavior
cancer, 1:386
cervical dysplasia, 1:449
chlamydia, 1:512–513, 514–515
genital warts, 2:914
gonorrhea, 2:950, 951
hepatitis, 2:1037
HIV transmission, 1:33, 39
pelvic inflammatory disease, 3:1721, 1722, 1724, 1725
syphilis, 4:2180, 2185
See also Safe sex practices
Sexual dysfunction, 2:974; 4:**2031–2034,** 2049
Sexually transmitted diseases (STDs)
ashwaganda for, 1:152
epididymitis from, 2:774
infertility and, 2:1178
pelvic inflammatory disease and, 3:1722, 1723, 1725
red cedar for, 3:1889
traditional African medicine for, 4:2253
witch hazel for, 4:2389
See also specific diseases
sGrub-byed (Tibetan medicine), 4:2239
Shakespeare, William, 1:288
Shaking. *See* Tremors
Shalem Institute, 3:1792
Shamana (panchakarma), 3:1689
Shamanism, 1:317; 2:1125; 4:**2034–2037,** *2035*
Shambaugh, George E., Jr., 4:2421
Shampoos
for cradle cap, 1:620
for dandruff, 2:661–662; 4:2009, 2011
eucalyptus in, 2:794
grapefruit seed extract in, 2:966
jojoba oil in, 2:1242
lemongrass in, 3:1329
for lice infestations, 3:1338
Shamsuddin, Abulkalam, 2:1192
Shan yao. *See* Chinese yam
Shan zhu yu. *See* Cornus

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Shang Ke Xiao Yan Gao, for knee pain, 2:1283
Shang-lu. *See* Phytolacca
Shang Shi Zhi Tong Gao, for knee pain, 2:1283
Shangri-la diet, 4:**2037–2041**
The Shangri-la Diet (Roberts), 4:2037–2041
Shanka bhasma, for hangovers, 2:988
Shankavati, for stomachaches, 4:2144
Shapiro, K., 3:1812
Shardunika, for worms, 4:2393
Share Guide, 1:333
Shark cartilage supplements, 1:410–411
Sharks Don't Get Cancer (Lane), 1:410
Shatavari
hangovers, 2:988
infertility, 2:1180, 1181
stomachaches, 4:2144
Shave-grass. *See* Horsetail
She chuang zi. *See* Cnidium seeds
Shealy, C. Norman, 2:763
Sheehan syndrome, 1:71
Sheep rot. *See* Gotu kola
Sheep sorrel, 4:*2041,* **2041–2043**
for cough, 1:619
in escharotic treatment, 2:783
in essiac tea, 2:790, 791; 4:2042
Sheikhouni, Soudon, 3:1431
Shell shock. *See* Post-traumatic stress disorder
Shellfish food poisoning, 2:860
Shen di huang, 1:497
Shen Ling Bai Zhu Wan, for diarrhea, 2:698
Shen Nong, 1:137; 2:781, 1291; 3:1430
Shen Nong Ben Cao Jing (Chinese text)
cnidium seeds, 1:551
epimedium, 2:781
gastrodia, 2:904
ophiopogon, 3:1637
scallion, 4:1983
Sheng Jiang. *See* Ginger
Shepard, Charles, 4:2220
Shepherd's purse, 2:760; 3:1482; 4:*2043,* **2043–2045**
Shi Jun Zi, for worms, 4:2393
Shiatsu, 3:1440; 4:**2045–2048,** *2046*
detoxification and, 2:679
facial massage and, 2:811
for insomnia, 2:1195
for neck pain, 3:1585
Shiatsu Therapists Association, 4:2046
Shigella
food poisoning and, 2:859, 859*t*
gastroenteritis from, 2:907
grapefruit seed extract for, 2:965
Shiitake mushrooms, 4:*2048,* **2048–2050,** *2049*
chemotherapy support, 2:1042
chronic fatigue syndrome, 1:532
infections, 2:1176
measles, 3:1446
in Sun's soup, 4:2170
Shin splints, 4:**2055–2056**
Shingles, 4:**2050–2055,** *2051*
cayenne for, 1:427
chickenpox and, 1:478; 4:2051
chymotrypsin for, 1:539
feverfew for, 2:833
grapefruit seed extract for, 2:966
homeopathy for, 2:1094
neem for, 3:1588
postherpetic neuralgia from, 3:1595, 1597–1598
St. John's wort for, 3:1881
t'ai chi for, 4:2194
Shinglewood. *See* Red cedar
Shintaido, 4:**2056–2057**
Shintaido of America, 4:2056, 2057
Shivambu. *See* Urine therapy
Shiz-hen, Li, 3:1856
Shock
homeopathy for, 2:1090
pancreatitis and, 3:1693–1694
potassium overdose and, 3:1789–1790
septic, 1:294
See also Anaphylaxis
Shock wave therapy, for tennis elbow, 4:2213
Shodhana (panchakarma), 3:1689
Shoe inserts. *See* Orthotics
Shoes. *See* Footwear
Short-bowel syndrome, medium-chain triglycerides for, 3:1457
Short-term memory loss, 3:1461
See also Memory loss
Short-term psychotherapy, 3:1848
Shortwave diathermy, 2:700
Shosaikoto, 1:504, 505
Shoshone people, lobelia use, 3:1354
Shou-wu-pian, 2:855
Shoulder pain, 3:1941; 4:2270
Showers, as hydrotherapy, 2:1121
See also Hydrotherapy
Shrub wormwood. *See* Wormwood
Shu di huang, 1:497
Si ni, for Raynaud's syndrome, 3:1887
Si Shen Wan, for diarrhea, 2:698
Sibelium (flunarizine), for Ménière's disease, 3:1467
Siberian ginseng, 2:**930–932**
aging, 1:30
anxiety, 1:116
atherosclerosis, 1:166
binge eating disorder, 1:241
chronic fatigue syndrome, 1:533
dementia, 2:665
genital herpes, 2:911
hangovers, 2:988
in herbal cold remedies, 2:1046
hypothyroidism, 2:1150
impotence, 2:1165
natural hormone replacement therapy and, 3:1573
ovarian cancer, 3:1671
ovarian cysts, 3:1676
panic disorders, 3:1698
phobias, 3:1743
stress, 4:2152
Sicca complex, 4:2071
Sichuan fritillary bulb. *See* Fritillaria
Sick building syndrome, 2:765; 4:*2057,* **2057–2060**
Sickle cell anemia, 4:*2060,* **2060–2066**
glutathione for, 2:940
overview, 1:84, 85, 86
zinc for, 4:2421
Sickle cell hemoglobin, 4:2061, 2064
Sickle cell retinopathy, 3:1917, 1918
Side-flowering skullcap. *See* Skullcap
Sidestream smoke, health risks, 4:2091
Sidhwa, Keki, 3:1575, 1577
Siegert, Johann Gottlieb Benjamin, 1:265
Sievert (radiation unit), 3:1872
Sigmoidoscopy, 1:579, 580, 582
Sildenafil citrate
impotence, 2:1165; 4:2033
prostate enlargement, 3:1832
Silent heart attacks, 2:1010
Silent ulcers, 4:2283
Silica, 4:**2066–2068,** *2067*
boils, 1:303
in cell salt therapy, 1:433
ear infections, 2:733
hair loss, 2:984
in homeopathy, 2:1084*t*
in horsetail, 2:1106–1107
ingrown nails, 2:1191
osteoporosis, 3:1665
sinus infections, 4:2069
Silicosis, sargassum seaweed for, 4:1975
Silvadine, 1:572
Silver. *See Argentum nitricum;* Colloidal silver
Silver bells. *See* Cramp bark
Silybum marianum. See Milk thistle
Simethicone, 1:568; 2:900
Similia similibus curentur. See Law of Similars
Simmondsia chinensis. See Jojoba oil
Simon, Maggie, 1:333
Simon, Paul-Max, 1:145
Simple fractures, defined, 2:863
See also Fractures
Sinemet (carbidopa), for Parkinson's disease, 3:1709

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Singing bowls, in sound therapy, 4:*2109*
Single photon emission tomography (SPECT), 2:777; 3:1462
Singular (montelukast sodium), for asthma, 1:157–158
Sinus infections, 4:**2068–2070**
craniosacral therapy for, 1:627
epimedium for, 2:781
eucalyptus for, 2:793, 794
eyebright for, 2:807
facial massage for, 2:809
ginkgo for, 2:922
grape seed extract for, 2:961
grapefruit seed extract for, 2:965
Hepar sulphuris for, 2:1035
homeopathy for, 2:1094
hyssop for, 2:1152
kali bichromium for, 2:1255
magnolia for, 3:1410
oregano for, 3:1639
osteopathy for, 3:1658
pennyroyal for, 3:1726
peppermint for, 3:1730
pinellia for, 3:1757
rhubarb for, 3:1934
steam inhalation for, 2:1122
stevia for, 4:2138
therapeutic touch for, 4:2224
Tibetan medicine for, 4:2239
usnea for, 4:2298
wasabi for, 4:2366
Sinus transillumination, 4:2069
Sinuses, 4:2068
Sioux people, echinacea use, 2:738
Sitopaladi, for wheezing, 4:2373
Sitz baths
with chamomile, 1:455
for hemorrhoids, 2:1033, 1122
for interstitial cystitis, 2:1202–1203
overview, 2:1122
Sivananda yoga, 2:993
Six tastes (Ayurvedic medicine), 1:194–195, 317
60 Minutes (television program), 3:1816
Sjögren's syndrome, 4:**2070–2072**
borage for, 1:310
dry mouth and, 2:720; 4:2071, 2072
gamma-linolenic acid for, 2:882
Skin cancer, 4:**2072–2075**
escharotic treatment for, 2:782
Hoxsey formula for, 2:1113, 1114
immuno-augmentation therapy and, 2:1160
sunburn and, 3:1873; 4:2073, 2167
turmeric for, 1:642
Skin care
for acne, 1:9
AHAs for, 1:62–64
aloe for, 1:60
grapefruit seed extract for, 2:966
hibiscus for, 2:1063
jojoba oil for, 2:1242
lemongrass, 3:1329
linoleic acid for, 3:1348
McDougall diet for, 3:1443
milk thistle for, 3:1503
parsley for, 3:1712
pine bark extract for, 3:1756
red clover for, 3:1891
for rosacea, 3:1946
squawvine for, 4:2129
vitamin E for, 4:2351, 2352
wild oat for, 4:2385
witch hazel for, 4:2388, 2389, 2390
Skin care products
BHAs in, 1:231
French green clay as, 2:866–867, 868
naturopathic medicine and, 3:1581
rosacea and, 3:1945, 1946
Skin discoloration
beta carotene, 1:229, 406
cirrhosis, 1:545
insulin resistance, 2:1198
polycystic ovarian syndrome, 3:1777
silver, 1:573
See also Hyperpigmentation
Skin diseases
aloe for, 1:60
apitherapy for, 1:120
applied kinesiology and, 1:126
arsenicum album for, 1:144, 145
ashwaganda for, 1:152
BHAs for, 1:231–233
bitter melon for, 1:264
black cumin seed extract for, 1:272
black currant seed oil for, 1:275
black walnut for, 1:278
bloodroot for, 1:297
borage for, 1:310
boswellia for, 1:314
brewer's yeast for, 1:336
burdock for, 1:359
castor oil for, 1:414
chelidonium for, 1:467
Chinese skullcap for, 4:2076
cnidium seeds for, 1:551, 552
coltsfoot for, 1:586
devil's claw for, 2:681
essential oils for, 2:788
eucalyptus for, 2:794
fenugreek for, 2:826
flaxseed for, 2:846
gamma-linolenic acid for, 2:882, 884
garlic for, 2:896
glucosamine for, 2:936
gotu kola for, 2:952, 954
Hepar sulphuris for, 2:1035, 1036
hibiscus for, 2:1063
homeopathy for, 2:1094
honeysuckle for, 2:1098
horsetail for, 2:1107
hydrotherapy for, 2:1120
hyssop for, 2:1152
itching and, 2:1228
jojoba oil for, 2:1242
juniper for, 2:1249, 1250
kombucha for, 2:1290
ledum for, 3:1325
light therapy for, 3:1344, 1346
linoleic acid for, 3:1348
lomatium for, 3:1357
lycopodium for, 3:1380, 1381
mangosteen for, 3:1425, 1426
manuka honey for, 3:1428
marsh mallow for, 3:1434
mercurius vivus for, 3:1484
neem for, 3:1588, 1589
neural therapy for, 3:1594
oak for, 3:1620
ox-eye daisy for, 1:536
oxygen therapy for, 3:1679
panchakarma for, 3:1689
pau d'arco for, 3:1719, 1720
peppermint for, 3:1729
psoralea seeds for, 3:1834
red clover for, 3:1891
Rescue Remedy for, 3:1909
schisandra for, 4:1990
sheep sorrel for, 4:2042
slippery elm for, 4:2088
sulfur for, 4:2162, 2163
tangerine peel for, 4:2196
tea tree oil for, 4:2198
wild oat for, 4:2385
witch hazel for, 4:2390
yellow dock for, 4:2406
Skin infections
arsenicum album for, 1:144
staphylococcal, 4:2134, 2135
tea tree oil for, 4:2198
thunder god vine for, 4:2234
Skin patch tests
AHAs, 1:63
allergies, 1:54
BHAs, 1:232
black cumin seed extract, 1:273
contact dermatitis, 1:601–602
dermatitis, 2:673–674
essential oils, 1:140; 2:789
hay fever, 2:998
oregano, 3:1640
vitamin E products, 4:2352
Skin pinch tests, for cellulite, 1:438
Skin rashes. *See* Rashes
Skin reactions
allergies, 1:53, 54, 55
arka, 1:133
balm of Gilead for, 1:200
BHAs, 1:232
chemical poisoning, 1:472
essential oils, 1:140–141
Skin respiratory factor (SRF), 1:335–336
Skin resurfacing, 1:9, 231, 232
Skin Study Center, 1:275
Skin tests, for tuberculosis, 4:2276

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Skin ulcers
eucalyptus, 2:794
mullein, 3:1536
usnea, 4:2298
yarrow, 4:2401
Skinner, B. F., 1:217, 218; 3:1848
Skullcap, 4:**2075–2078**
alcoholism, 1:44
anxiety, 1:116
binge eating disorder, 1:241
bipolar disorder, 1:257
fractures, 2:864
headaches, 2:1004
insomnia, 2:1196
menopause, 3:1475
migraine, 3:1500
pain, 3:1685
panic disorders, 3:1698
phobias, 3:1743
postpartum depression, 3:1781
premenstrual syndrome, 3:1806
rhinitis, 3:1928
sleep disorders, 4:2085
substance abuse, 4:2161
tremors, 4:2263
Skunk cabbage, for whooping cough, 4:2379
SLE. *See* Systemic lupus erythematosus
Sleep (journal), 2:1196
Sleep apnea, 4:*2078*, **2078–2082,** 2096, 2097
Sleep disordered-breathing, 4:2096
Sleep disorders, 4:**2082–2087**
bedwetting and, 1:212
geriatric massage, 2:917
gotu kola for, 2:953
hops for, 2:1100
jet lag and, 2:1237, 1238
magnetic therapy for, 3:1408
melatonin for, 3:1459
noni for, 3:1605
passionflower for, 3:1714, 1716
phytolacca for, 3:1748
schisandra for, 4:1990
shiatsu for, 4:2047
tangerine peel for, 4:2196
theanine for, 4:2221
Sleep endoscopy, 4:2097
Sleep latency tests, 3:1564
Sleep-onset insomnia, 2:1194
Sleep patterns, fatigue and, 2:816
Sleep pillows, for insomnia, 2:1196; 4:2076
Sleep positions
breast-feeding problems, 1:328
sleep apnea, 4:2080
snoring, 4:2098
Sleep-restriction therapy, 2:1195
Sleep stages, 2:1193; 4:2082
Sleep terror disorder, 4:2083
Sleepwalking disorder, 4:2084
Slipped disks. *See* Herniated disks
Slippery elm, 4:**2087–2090,** *2088*
bedsores, 1:211
canker sores, 1:398
colic, 1:568
colorectal cancer, 1:580
common cold, 1:590
cradle cap, 1:620
Crohn's disease, 1:633
croup, 1:636
in essiac tea, 2:790, 791
gastritis, 2:902
gastroenteritis, 2:907
heartburn, 2:705, 1023
inflammatory bowel disease, 2:1185
influenza, 2:1187
irritable bowel syndrome, 2:1220
laryngitis, 3:1308, 1309
mononucleosis, 3:1515
peptic ulcers, 4:2286
rashes, 3:1882
sore throat, 4:2106
stomachaches, 4:2143
teething, 4:2205
tonsillitis, 4:2245
Slippery root. *See* Comfrey
Slit lamp tests, 2:933; 3:1603
Small bowel x-ray series. *See* Upper GI x-ray series
Small cell lung cancer, 3:1368, 1372
See also Lung cancer
Small parasites, defined, 3:1702
Small round-structured viruses (SRSVs), 2:906
Smallpox, gardenia for, 2:894
Smarana bhakti, 1:236
Smell
essential oils and, 2:788
multiple chemical sensitivity and, 3:1539
of thuja, 4:2232
vegetarianism and, 4:2327
Smell and Taste Research Foundation, 1:544
Smoking, 4:**2090–2095,** 2090*t*
atherosclerosis and, 1:165
beta carotene and, 4:2093, 2334
bladder cancer and, 1:280
cancer and, 1:386
cataracts and, 1:416
cervical dysplasia and, 1:449
chronic bronchitis and, 1:339, 341
emphysema from, 2:753, 756, 757
gum diseases and, 2:979
heart attacks and, 2:1011, 1014
heart disease and, 2:1016, 1020
high sensitivity C-reactive protein test and, 2:1069
ischemia and, 2:1223, 1226
of lobelia, 3:1354
of lomatium, 3:1356
lung cancer and, 3:1368, 1372
of marijuana, 3:1431, 1433
osteoporosis and, 3:1666
peptic ulcers and, 4:2283
schizophrenia and, 4:1995
strokes and, 4:2156–2157
of uva ursi, 4:2305
Smoking cessation, 4:2090*t*, 2092–2095
hypnotherapy for, 2:1141
lobelia for, 3:1354; 4:2090*t*
wild oat for, 4:2385
Snack food recommendations, 1:489*t*, 492
Snake bites, 1:259, 260, 262
See also Bites and stings
Snake plantain. *See* Plantain
Snake venom, 3:1298
Snakebite (plant). *See* Bloodroot
Snakeroot. *See* Black cohosh
Snakeweed. *See* Plantain
Sneezing, 4:**2095–2096**
Snoezelen therapy, 4:2108
Snoring, 4:2079, **2096–2099**
Snow, Alan, 2:953
Snowball tree. *See* Cramp bark
So Sollt Ihr Leben (Kneipp), 2:1285
gSoba Rig-pa. *See* Tibetan medicine
Sobel, David, 3:1843–1844
Social factors
ADHD, 1:177
anorexia nervosa, 1:99
anxiety, 1:115
bulimia nervosa, 1:353
obesity, 3:1626
pelvic inflammatory disease, 3:1721
postpartum depression, 3:1780
Shangri-la diet, 4:2038
stress response and, 4:2152
veganism, 4:2323
Social phobia, 3:1742, 1743
Social Security Administration, 3:1838
Social workers, 3:1849
Socially unacceptable snoring, 4:2096
Society for Clinical and Experimental Hypnosis (SCEH), 2:1143
Society for Surgery of the Alimentary Canal, 2:710
Society for Teachers of the Alexander Technique (STAT), 1:19
Society of Ortho-bionomy International, 3:1649
Socrates, 2:1080; 3:1523
SOD. *See* Superoxide dismutase
Sodium, 4:*2099*, **2099–2102,** 2100*t*
for bone spurs, 1:309
edema and, 2:745, 746
fibrocystic breast disease and, 2:837
heart disease and, 2:1019
in kelp, 2:1268, 1270

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

as major mineral, 1:462
potassium and, 3:1787
Sodium bicarbonate. *See* Bicarbonate of soda
Sodium chloride. *See Natrum muriaticum*
Sodium deficiency, 4:2100
Sodium phosphate, 1:433; 3:1800
Sodium-potassium pump, digitalis and, 2:707, 708
Sodium sulfacetamide, for conjunctivitis, 1:595
Sodium sulfate, in cell salt therapy, 1:433
Sodium tetradecyl sulfate, for Kaposi's sarcoma, 2:1259
Sodium valproate. *See* Valproate/valproic acid
Soft tissue injuries
chymotrypsin for, 1:538
massage therapy for, 3:1439
prolotherapy for, 3:1823–1824
ruta for, 3:1961
See also specific types
Soft tissue techniques (osteopathy), 3:1660; 4:2210
Solanum incanum, for cirrhosis, 1:548
Solar retinopathy, 3:1917, 1918
Soldanella. *See* Lysimachia
Soldiers (plant). *See* Lysimachia
Soldier's herb. *See* Plantain
Soldier's woundwort. *See* Yarrow
Solidago species. *See* Goldenrod
Solomon's seal, for rashes, 3:1882
Soluble fiber
for constipation, 1:598
defined, 3:1612
high fiber diet and, 2:1066, 1068
hot flashes and, 2:1110
Solzhenitzyn, Alexander, 2:1289
Somatic anxiety, 1:113
See also Anxiety
Somatic Experiencing (SE), for post-traumatic stress disorder, 3:1785
Somatics, 3:1586; 4:**2102–2104**
Somatoemotional release, 1:627
Somatoform disorders. *See* Psychosomatic disorders
Somnabulism, 4:2084
Sophorae flavescentis, for inflammatory bowel disease, 2:1184
Sorbitol, 1:598; 2:1221
Sorceror's violet. *See* Periwinkle
Sore nipples. *See* Nipple problems
Sore throat, 4:**2104–2107**
anise for, 1:94
apitherapy for, 4:2331
apple cider vinegar for, 1:123
arsenicum album for, 1:144, 145
cayenne for, 1:428
chickweed for, 1:480
coltsfoot for, 1:586
coptis for, 1:607
eucalyptus for, 2:793, 794
eyebright for, 2:807
ferrum phosphoricum for, 2:828
field mint for, 4:2117
French green clay for, 2:868
gentiana for, 2:916
goldenrod for, 2:945
grapefruit seed extract for, 2:965
hawthorn for, 2:996
Hepar sulphuris for, 2:1035
homeopathy for, 2:1090
honey for, 3:1427
horehound for, 2:1102
Iceland moss for, 2:1156
ignatia for, 2:1157, 1158
kali bichromium for, 2:1255
kava kava for, 2:1261
lachesis for, 3:1299, 1300
ledum for, 3:1325
licorice for, 3:1342
lycopodium for, 3:1380, 1381
lycopus for, 3:1383
marsh mallow for, 3:1434, 1435
mercurius vivus for, 3:1484
mononucleosis and, 3:1514, 1515; 4:2105, 2106
mullein for, 3:1536
natrum muriaticum for, 3:1569
nux vomica for, 3:1617
oak for, 3:1620
ophiopogon for, 3:1637
osha for, 3:1652, 1653
peppermint for, 3:1731
periwinkle for, 3:1736
phytolacca for, 3:1748
plantain for, 3:1764
rhus toxicodendron for, 3:1936, 1937
rosemary for, 3:1951
sage for, 4:1970
scarlet fever and, 4:1985, 1986, 1987–1988
slippery elm for, 4:2088
steam inhalation for, 2:1122
sulfur for, 4:2162
thuja for, 4:2232
thyme for, 4:2237
tonsillitis and, 4:2244
usnea for, 4:2298
wintergreen for, 4:2387
Sorrel. *See* Sheep sorrel
Sound Healers Association, 4:2110, 2111
Sound therapy, 4:**2107–2111**, *2108, 2109*
color therapy and, 1:578
cymatic therapy and, 1:649–650
forchronic fatigue syndrome, 1:533
for peptic ulcers, 4:2286
See also Auditory integration training
Sound transmission, 2:1006
Sour grass. *See* Sheep sorrel
Sourness
Ayurvedic medicine, 1:194–195
traditional Chinese medicine, 1:503; 2:1043
South African Medical Journal, 4:2019
South Beach diet, 4:**2111–2115**, 2111*t*, 2112*t*
The South Beach Diet (Agatston), 4:2111–2112
Southern Medical Journal, 4:1980
Southwell, Ian, 4:2199
Southwest College of Naturopathic Medicine, 2:1053; 3:1581
Soviet Union
ginseng research, 2:930
sports massage, 4:2124
Soy products
in anti-inflammatory diet, 1:107
hot flashes, 2:1109, 1110
natural hormone replacement therapy and, 3:1571, 1573–1574
osteoporosis, 3:1665
polycystic ovarian syndrome, 3:1779
premenstrual syndrome, 3:1805
veganism and, 4:2321–2322
vegetarianism and, 4:2328
Soy protein, 4:*2115*, **2115–2117**
cholesterol control, 1:519, 520
endometriosis, 2:760
Spanish fly. *See* Cantharis
Spasmodic croup, 1:635
See also Croup
Spasmolytics. *See* Antispasmodics
Spastic colon. *See* Irritable bowel syndrome
Spastic motor impairment, 1:442, 444
Spearmint, 3:1309; 4:*2117*, **2117–2120**
Special education
cerebral palsy, 1:443–444, 445
dyslexia, 2:727
hearing loss, 2:1009
juvenile rheumatoid arthritis, 2:1254
learning disorders, 3:1321–1322
Tourette syndrome incidence and, 4:2247–2248
Specific phobias, 3:1741–1742, 1744
Specifics (traditional Chinese medicine), 2:1051
SPECT scans, 2:777; 3:1462
Speech in noise (SN) discrimination testing, 1:180
Sperm count
glutathione for, 2:940
infertility and, 2:1178, 1179, 1181
tangerine peel for, 4:2196
vitamin E for, 4:2351
Sperm whale oil, 2:1242
Spermatorrhea, 1:613; 2:653

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Spermicides, neem as, 3:1589
Sphygmology. *See* Pulse diagnosis
Sphygmomanometers, 2:1132–1133
SPICE (Survival and Prognosis Investigation of Crataegus Extract), 2:996
Spice berry. *See* Wintergreen
Spiciness
  Ayurvedic medicine, 1:194
  traditional Chinese medicine, 1:503; 2:1043
Spider bites, 1:259, 260, 262
Spider-burst veins, 4:2316, 2317
Spigelia, for worms, 4:2393
Spilanthes, for Lyme disease, 3:1386
Spinach juice, for wheezing, 4:2373
Spinal column, herniated disk and, 2:1054
Spinal cord injuries, movement therapy for, 3:1524
Spinal fusion
  herniated disks, 2:1057
  low back pain, 3:1366
  scoliosis, 4:2005–2006
Spinal manipulative therapy, 1:447–448; 4:**2120–2122**
  See also Chiropractic; Osteopathic manipulation
Spinal tap. *See* Lumbar puncture
Spinal twist yoga position, for constipation, 1:599
Spines (stingrays), 1:260
Spines, on prickly pear cactus, 3:1812
Spiral computed tomography, for lung cancer, 3:1369
Spire mint. *See* Spearmint
Spiritual healing
  Christian Science healing, 1:525–528
  for chronic fatigue syndrome, 1:533
  in curanderismo, 1:640–641
  energy medicine and, 2:763–764
  for hypercortisolemia, 2:1125
  Native American medicine and, 3:1565, 1566
  for premenstrual syndrome, 3:1805
  shamanism and, 4:2034–2037
  Thai massage and, 4:2217–2219
  traditional African medicine and, 4:2253
  See also Prayer and spirituality
Spirituality. *See* Prayer and spirituality
Spirochetes, 4:2180
Spirometry, 1:155, 339
Spironolactone, for virilization, 3:1778
Spirulina, 4:*2122,* **2122–2124**
  ADHD, 1:177
  heavy metal poisoning, 2:1027
  vegetarians, 4:2327
Spitler, Harry Riley, 4:2178
Spleen
  atractylodes for, 1:173
  chicory for, 1:481, 482
  uva ursi for, 4:2305
Spleen enlargement
  hemolysis, 2:1234
  mononucleosis, 3:1514
  sickle cell anemia, 4:2063
Splints
  carpal tunnel syndrome, 1:408, 409
  fractures, 2:864
  temporomandibular joint syndrome, 4:2207–2208
  tennis elbow, 4:2212
Spondylitis, ankylosing. *See* Ankylosing spondylitis
Spondylitis Association of America, 1:96
Spondyloarthropathy, 2:1252, 1254
Spongia
  croup, 1:636
  laryngitis, 3:1309
  wheezing, 4:2372
Spontaneous Healing (Weil), 1:494; 3:1509
Spontaneous Release through Positioning (Jones), 3:1648
Sporadic Lou Gehrig's disease, 3:1360
  See also Lou Gehrig's disease
Sports massage, 3:1440, 1959–1960; 4:**2124–2127,** *2125*
Sports medicine
  androstenedione in, 1:78–79
  creatine in, 1:628–629
  glucosamine in, 2:936
  massage therapy in, 3:1440
  osteopathy in, 3:1658
  prolotherapy in, 3:1823
  Rescue Remedy in, 3:1909
  Rolfing in, 3:1941
  spinal manipulative therapy in, 4:2120, 2121
  Swedish massage in, 4:2173, 2174
  Trager psychophysical integration in, 4:2259
  tui na massage in, 4:2257
  wintergreen in, 4:2387
Sports Nutrition Review Journal, 2004, 1:225
Spotted thistle. *See* Blessed thistle
Spotted wintergreen. *See* Wintergreen
Sprains and strains, 4:*2127,* **2127–2129**
  arnica for, 1:135
  comfrey for, 1:587
  compresses for, 2:1122
  French green clay for, 2:866
  homeopathy for, 2:1090
  knee pain and, 2:1282
  ledum for, 3:1324
  lemongrass for, 3:1329, 1330
  lobelia for, 3:1355
  manganese for, 3:1423, 1424
  massage therapy for, 3:1439, 1441
  phytolacca for, 3:1748
  prolotherapy for, 3:1823
  rhus toxicodendron for, 3:1936
  rosemary for, 3:1951
  Russian massage for, 3:1959
  ruta for, 3:1961
  safflower in, 4:1967
  St. John's wort for, 4:2132
  tangerine peel for, 4:2196
  tea tree oil for, 4:2198
  tui na massage for, 4:2257
  white willow for, 4:2376
  witch hazel for, 4:2388
  wormwood for, 4:2396
  yerba santa for, 4:2408
  yucca for, 4:2418
Sprays, nasal. *See* Nasal sprays
Spreng. *See* Uva ursi
Spring onion. *See* Scallion
Spring-onset seasonal affective disorder, 4:2006
The Sprouting Book (Wigmore), 4:2382
Sprue. *See* Celiac disease
Spurling's test, 2:1056
Sputum analysis. *See* Saliva sample testing
Spyan-ras-gzigs. *See* Quan yin
Squamous cell carcinomas
  defined, 1:385; 4:2072
  escharotic treatment for, 2:782
  green tea for, 2:968
  overview, 4:2073
Squamous epithelial cells, 1:449
Squaw balm. *See* Pennyroyal
Squaw berry/vine. *See* Squawvine
Squaw root. *See* Black cohosh; Blue cohosh
Squaw tea. *See* Ephedra
Squawmint. *See* Pennyroyal
Squawvine, 4:**2129–2130**
  premenstrual syndrome, 3:1805
  sleep disorders, 4:2085
  uterine cancer, 4:2299
Squeeze technique, for premature ejaculation, 4:2033
Squid remedy. *See* Sepia
Squill, cardiac glycosides from, 2:707
Squirrel corn. *See* Corydalis
Sravana bhakti, 1:236
SRF (skin respiratory factor), 1:335–336
Srimal, R. C., 4:2280
Srog-'dzin (Tibetan medicine), 4:2239
SRSVs (small round-structured viruses), 2:906
SSRIs. *See* Selective serotonin reuptake inhibitors
Ssu-ma Ch'ien, 4:2193
St. Benedict thistle. *See* Blessed thistle

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

St. Elizabeth's Hospital, 2:655, 656
St. Helena Hospital and Health Center, 3:1443, 1444
St. Ignatius beans. *See* Ignatia
St. James's weed. *See* Shepherd's purse
St. Jeor, Sachiko, 4:2425
St. John Ambulance Therapy Dogs, 3:1739
St. John's herb. *See* Mugwort
St. John's wort, 4:**2130–2134,** *2131*
anxiety, 1:116
bedwetting, 1:213
binge eating disorder, 1:241
bipolar disorder, 1:257
burns, 1:362
depression, 2:670; 3:1580
dysbiosis, 2:724
ear infections, 2:733
earaches, 2:736
fractures, 2:864
insomnia, 2:1196, 1197
itching, 2:1229
knee pain, 2:1282
learning disorders, 3:1322
low back pain, 3:1365
menstruation disorders, 3:1482
mononucleosis, 3:1515
neuralgia, 3:1596
obsessive-compulsive disorder, 3:1629
ovarian cancer, 3:1671
ovarian cysts, 3:1676
peripheral neuropathy, 3:1734
postpartum depression, 3:1781
premenstrual syndrome, 3:1806
radiation injuries, 3:1876
rashes, 3:1881, 1882
shingles, 3:1881; 4:2053
sleep disorders, 4:2085
wounds, 4:2399
St. Mary thistle. *See* Milk thistle
St. Patrick Hospital, 3:1553
St. Vitus' dance. *See* Chorea
Stable angina, 1:89
Stachybotrys chartarum, 4:*2057*
Stachys officinalis. See Wood betony
Stag horn. *See* Lycopodium
Stagbush. *See* Black haw
Stage 1/2/3/4 NREM sleep, 4:2082
Stages I-VI bedsores, 1:210
Staggered sporadic word (SSW) testing, 1:180
Staghorn kidney stones, 2:1278
Staging of cancer. *See* Cancer staging
Stahl, Lesley, 2:1099
Stahler, Charles, 4:2319
Stalmatski, Alexander, 1:368
Stanate, for newborn jaundice, 2:1236
Stanchweed. *See* Yarrow
Standardized herbal extracts
African pygeum, 1:25
Korean ginseng, 2:929
overview, 1:319
Western herbalism and, 2:1048
Stanford University, 4:2193
Stapes bone, 2:731
Staphylococcal infections, 4:*2134,* **2134–2138**
garlic for, 2:895
oregano for, 3:1640
pneumonia and, 3:1770, 1772
spearmint for, 4:2119
Staphylococcus aureus
boils from, 1:302–303
food poisoning from, 2:859
grapefruit seed extract for, 2:965
impetigo from, 2:1163
manuka honey for, 3:1428
overview, 4:2135
swimmer's ear and, 4:2176
vaccine for, 4:2137
Staphylococcus epidermis, 4:2135–2136, 2176
Staphylococcus saprophyticus, 4:2136
Staphysagria, 1:285, 647
Star flower. *See* Borage oil
Star-of-Bethlehem flower essence
as flower remedy, 1:198; 2:850*t,* 852
in Rescue Remedy, 3:1908, 1909
in Rescue Sleep, 4:2085
Starfruit, for kidney stones, 2:1278
Startle response, 4:2103
Starweed/wort. *See* Chickweed
Stasis, phlebitis and, 3:1739
Stasis dermatitis, 2:673, 674, 742
STAT (Society for Teachers of the Alexander Technique), 1:19
State University of New York, 1:529
Static encephalopathy. *See* Cerebral palsy
Statins
cholesterol control, 1:520
high sensitivity C-reactive protein test and, 2:1069
ischemia, 2:1226
in red yeast rice extract, 3:1893, 1894
Status epilepticus, 2:776, 777, 778
Stavesacre. *See Staphysagria*
STDs. *See* Sexually transmitted diseases
Steam inhalation
aromatherapy and, 1:139–140
common cold, 2:1046, 1047
croup, 1:635
ear infections, 2:733
influenza, 2:1187
laryngitis, 3:1308
overview, 2:1121
with peppermint, 3:1732
respiratory disorders, 2:1122
snoring, 4:2098
wheezing, 4:2371
Stearidonic acid, 2:784
Steckelberg, James, 2:1046
Stein-Leventhal syndrome. *See* Polycystic ovarian syndrome
Steiner, Rudolph, 1:102
Stellaria alsine, 1:480
Stellaria dichotoma, 1:480
Stellaria media. See Chickweed
Stem cell treatment
cell therapy, 1:434
cerebral palsy, 1:445
lymphomas, 3:1420
Parkinson's disease, 3:1711; 4:2263
Stenting
cerebral vascular insufficiency, 1:448
heart disease, 2:1019
ischemia, 2:1226
Stereotactic treatment, for Tourette syndrome, 4:2250
Sterile abscesses, 1:1
Sterman, Barry, 1:242
Stern, Jess, 1:425
Sternutation. *See* Sneezing
Steroids
asthma, 1:157, 158
herniated disks, 2:1057
hypercortisolemia and, 2:1124, 1125
inflammatory bowel disease, 2:1185
multiple sclerosis, 2:778
psoriasis, 3:1837
rheumatoid arthritis, 3:1927
sinus infections, 4:2070
systemic lupus erythematosus, 4:2189
Stevenson, Ian, 3:1718
Stevia, 4:**2138–2140**
Sties, 2:1107; 4:*2140,* **2140–2142**
Stiff neck. *See* Neck pain
Stigmata maydis. *See* Cornsilk
Stiles, Steve, 2:996
Still, Andrew Taylor, 3:1657–1658, 1661, *1661;* 4:2121
Stillingia sylvatica
in Hoxsey formula, 2:1114
for syphilis, 4:2184, 2185
Stimulant laxatives, 1:414, 415
Stimulants
abuse of, 4:2158
for ADHD, 1:177
for autism, 1:190
blessed thistle, 1:288
caffeine, 1:373
for dyslexia, 2:727–728
ephedra, 2:770, 771
kola nuts, 2:1286–1287, 1288
Korean ginseng, 2:928, 929
for narcolepsy, 3:1564
thyme, 4:2236
Stinging nettle. *See* Nettle

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Stingray venom, 1:260, 262
Stings. *See* Bites and stings
Stinking balm. *See* Pennyroyal
Stinking rose. *See* Garlic
Stitchwort. *See* Chickweed
Stomach acid, 1:233–234
Stomach cancer
prince's pine for, 3:1814
sodium and, 4:2101
wasabi for, 4:2366
Stomach flu. *See* Gastroenteritis
Stomach tea, for nausea, 3:1583
Stomach ulcers
acidophilus for, 3:1305
ashwaganda for, 1:152
chelidonium for, 1:467
Chinese thoroughwax for, 1:504
cinnamon for, 1:543
deglycyrrhizinated licorice for, 2:662
fenugreek for, 2:826–827
ginger for, 2:921
grapefruit seed extract for, 2:966
Helicobacter pylori infections and, 2:900, 901, 921
manuka honey for, 3:1428, 1429
mugwort for, 3:1534
psyllium for, 3:1850
Siberian ginseng for, 2:930
slippery elm for, 4:2088
See also Peptic ulcers
Stomachaches, 4:**2142–2145**
ephedra for, 2:771
gentiana for, 2:916
lemongrass for, 3:1329
scallion for, 4:1984
thuja for, 4:2232
valerian for, 4:2312
wormwood for, 4:2395
yerba santa for, 4:2407, 2408
Stomatitis. *See* Canker sores; Cold sores
Stone, Irwin, 3:1650
Stone, Randolph, 1:396; 3:1774, 1776
Stone Age diet. *See* Paleolithic diet
Stone massage, 4:**2145–2146**
Stool tests
diarrhea, 2:696
dysbiosis, 2:723
parasitic infections, 3:1704
worms, 4:2393
Stories the Feet Can Tell (Ingham), 3:1896, 1897
Strabismus, 1:444; 3:1313
Strains. *See* Sprains and strains
Strangle tare. *See* Cuscuta
Strattera (atomoxetine), 1:177
Straw. *See* Wild oat
Strawberry leaf, for premenstrual syndrome, 3:1805
Strelitzia reginae, for itching, 2:1229
Strep throat, 4:2105, **2146–2150,** *2147*
manuka honey for, 3:1428
obsessive-compulsive disorder and, 3:1628
pau d'arco for, 3:1720
rheumatic fever from, 2:1175; 3:1920–1921, 1924
vs. scarlet fever, 4:1987, 2147
tonsillitis and, 4:2244–2245
usnea for, 4:2298
Streptococcal infections
ear infections and, 2:732
garlic for, 2:895
grapefruit seed extract for, 2:965
impetigo from, 2:1163
meningitis from, 3:1470
pneumonia and, 3:1770, 1772, 1773
scarlet fever from, 4:1985
tonsillitis and, 4:2244, 2245
Streptococcal sore throat. *See* Strep throat
Streptococcal toxic shock syndrome, 4:2251, 2252
Streptococcus pneumoniae, 2:965; 4:2068
Streptomycin, for tuberculosis, 4:2277
Stress, 4:**2150–2153**
asthma, 1:154
bedwetting, 1:212
binge eating disorder, 1:240, 241
breast-feeding problems, 1:328, 329
genital herpes, 2:911
glutamine, 2:938
heart attacks, 2:1012
heart disease, 2:1017
hypertension, 2:1132
irritable bowel syndrome, 2:1219
ischemia, 2:1224
itching, 2:1229
memory loss, 3:1461
mind/body medicine, 3:1505
psychophysiology, 3:1841
Stress fractures, 2:863
Stress incontinence, 4:2290, 2291*t*
See also Urinary incontinence
Stress management, 4:2151–2153
AIDS, 1:37
alcoholism, 1:44
Alexander technique for, 1:47–48, 49
amenorrhea, 1:72
angina, 1:91
anorexia nervosa, 1:100
anxiety, 1:115
art therapy, 1:146
atherosclerosis, 1:167
Ayurvedic medicine and, 1:194
binge eating disorder, 1:241
biofeedback for, 1:242
breast-feeding problems, 1:329
breath therapy for, 1:333
breema for, 1:333–335
bruxism, 1:343
cancer, 1:389
childbirth, 1:484–485
cirrhosis, 1:547
colitis, 1:571
dizziness, 2:714
epilepsy, 2:777
facial massage for, 2:809, 811
fatigue, 2:816
Feldenkrais method for, 2:819–820
ganoderma for, 2:888
genital herpes, 2:911
genital warts, 2:914
geriatric massage for, 2:917
glaucoma, 2:934
guided imagery for, 2:972
heart attacks, 2:1012, 1014
heart disease, 2:1020
as holistic medicine, 2:1081
humor therapy for, 2:1117
hydrotherapy for, 2:1120
hypercortisolemia, 2:1125–1126
hyperthyroidism, 2:1139
hypnotherapy for, 2:1141; 3:1508
indigestion, 2:1170
infant massage for, 2:1172
infertility, 2:1181
irritable bowel syndrome, 2:1220
ischemia, 2:1225
journal therapy for, 2:1243–1244
leukemia, 3:1334
lung cancer, 3:1372
lymphomas, 3:1420
magnetic therapy for, 3:1408
massage therapy for, 3:1440
meditation for, 3:1449
meditative prayer for, 3:1794
Ménière's disease, 3:1467
mercury poisoning, 3:1489
mindfulness meditation for, 3:1507
nux vomica for, 3:1616
Ornish diet and, 3:1646, 1647
ortho-bionomy for, 3:1649
ovarian cancer, 3:1670
ovarian cysts, 3:1676
panchakarma and, 3:1690
pancreatitis, 3:1695
peppermint for, 3:1731
peptic ulcers, 4:2283
polarity therapy for, 3:1774
postpartum depression, 3:1781
pregnancy, 3:1800
premenstrual syndrome, 3:1807
qigong for, 3:1859
Raynaud's syndrome, 3:1887
reflexology for, 3:1897
reiki for, 3:1900, 1901
rhodiola rosea for, 3:1931–1932
Rosen method for, 3:1953
schizophrenia, 4:1999
shiatsu for, 4:2046
shintaido for, 4:2056
Siberian ginseng for, 2:931
sick building syndrome, 4:2059
sties, 4:2141

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

stone massage for, 4:2145
substance abuse, 4:2161
Swedish massage for, 4:2172, 2174
systemic lupus erythematosus, 4:2188
t'ai chi for, 4:2192
tangerine peel for, 4:2196
temporomandibular joint syndrome, 4:2207, 2208
therapeutic touch for, 4:2224
thunder god vine for, 4:2235
Tourette syndrome, 4:2249
trichotillomania, 2:984
uterine cancer, 4:2300
valerian for, 4:2312
vitamin B12 for, 4:2336
yoga for, 4:2409, 2412

Stress tests, 1:90; 2:1224

Stress urinary incontinence, 2:1263, 1265

Stretching exercises
fibromyalgia, 2:839
heel spurs, 2:1030
muscle cramps, 3:1548
temporomandibular joint syndrome, 4:2208
tendinitis, 4:2210, 2211
tennis elbow, 4:2212
types, 2:804–805

Stridor, 1:635; 3:1308

String of sovereigns. *See* Lysimachia

Stringy bark tree. *See* Eucalyptus

Stripping, of varicose veins, 4:2317, 2318

Strobiles. *See* Hops

Strokes, 4:**2153–2157,** *2154*
atherosclerosis and, 1:165
calcium and, 1:379
cerebral vascular insufficiency and, 1:446
chiropractic and, 1:510
coleus for, 1:566
ganoderma for, 2:889
ginkgo for, 2:922
high sensitivity C-reactive protein test and, 2:1069, 1071
HRT and, 3:1665
ischemia and, 2:1222
lacto-ovo vegetarianism for, 3:1302
meditation for, 3:1449
Mediterranean diet for, 3:1454
motherwort for, 3:1519
movement therapy for, 3:1524
noni for, 3:1606
pine bark extract for, 3:1756
qigong for, 3:1859
quercetin for, 3:1866
scallion for, 4:1984
shiatsu for, 4:2047
sickle cell anemia and, 4:2063
sneezing and, 4:2095
therapeutic touch for, 4:2223
Trager psychophysical integration for, 4:2259
veganism for, 4:2319
vegetarianism for, 4:2326
white willow for, 4:2376

Strophanthus sarmentosus, cardiac glycosides from, 2:707

Structural integration. *See* Rolfing

Struvite kidney stones, 2:1276, 1278

Strychnine, 2:1157; 3:1616, 1618

Styrax benzoin. See Benzoin

Su Geng, 1:174

Su Gua Gen, for whooping cough, 4:2380

Subacute sclerosing panencephalitis, 3:1446

Subjective tinnitus, 4:2241, 2243

Subluxations, chiropractic and, 1:507, 508

Submucous uterine fibroids, 4:2301–2302
See also Uterine fibroids

Subserous uterine fibroids, 4:2301
See also Uterine fibroids

Substance abuse and dependence, 4:**2157–2163,** 2158*t*, *2159*
acupuncture for, 1:17
anxiety from, 1:114
auriculotherapy for, 1:186
bipolar disorder and, 1:256, 257
homeopathy for, 2:1094
hypnotherapy for, 3:1508
lobelia for, 3:1354
meditation for, 3:1449, 1451
music therapy for, 3:1552
schizophrenia and, 4:1995
syphilis and, 4:2180
See also Alcoholism; Smoking

Substance Abuse and Mental Health Services Administration, 1:40

Substance P
capsaicin, 1:427
interstitial cystitis, 2:1201
motion sickness, 3:1522

Substantia nigra, Parkinson's disease and, 3:1706, 1707

Succimer chelation therapy. *See* Dimercaprol chelation therapy

Succory. *See* Chicory

Succussion of homeopathic remedies, 2:1086, 1087, 1089, 1091, 1093

Sucralfate, for peptic ulcers, 4:2286

Sucrases, 2:768

Sudharshan, for hangovers, 2:988

Suedfeld, Peter, 4:2022

Suehana, for dandruff, 2:661

Sufra (unani-tibbi), 4:2289

Sugar
ADHD and, 1:175
childhood nutrition and, 1:491
foods high in, 3:1612*t*
for hypoglycemia, 2:1146
inflammation and, 1:107
juice therapy and, 2:1248
See also Artificial sweeteners

Sugar diabetes. *See* Diabetes mellitus

Sugar water, in Shangri-la diet, 4:2039

Sugarleaf. *See* Stevia

Suicide
bipolar disorder, 1:255, 258
depression, 2:672
postpartum depression, 3:1782
schizophrenia, 4:1995, 1999

Sulamyd (sodium sulfacetamide), for conjunctivitis, 1:595

Sulfadoxone/pyrimethamine, for malaria, 3:1417

Sulfamethoxazole, for kidney infections, 2:1274

Sulfasalazine
acidophilus and, 1:5
colitis, 1:571
Crohn's disease, 1:633
inflammatory bowel disease, 2:1185
juvenile rheumatoid arthritis, 2:1253

Sulfites, toxicity of, 2:702*t*

Sulfonylureas, for diabetes, 2:689

Sulfur, 4:**2163–2165**
for chickenpox, 1:478
in colostrum, 1:583
for conjunctivitis, 1:594
for contact dermatitis, 1:602
for dandruff, 2:661
in garlic, 2:894, 896, 897
for hives, 2:1072
in homeopathy, 2:1084*t*
as major mineral, 1:462
for menopause, 3:1476
MSM and, 3:1530
for rashes, 3:1882

Sultan Qaboos University, 4:2290

Suma, 4:**2165–2166**

Sumac
common cold, 1:591
rashes, 3:1882
sore throat, 4:2106
strep throat, 4:2148
urinary incontinence, 4:2293

Sumatriptan, for headaches, 2:1005; 3:1500

Summers, Elaine, 3:1526

Summer's Eve douches, 4:2309

Sun, Alexander, 4:2169, 2170

Sun exposure
in Bates method, 1:207
cellulite and, 1:438
chymotrypsin for, 1:539
jet lag and, 2:1238
as light therapy, 3:1343–1344
for psoriasis, 3:1837
radiation injuries and, 3:1873
retinopathy and, 3:1917, 1918
rosacea and, 3:1946

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Sun exposure *(continued)*
skin cancer and, 4:2073, 2074
vitamin D and, 4:2168, 2346, 2347
See also Photosensitizing compounds
Sun Farm Corporation, 4:2169, 2170, 2171
Sun Simiao, 1:501–502
Sunburn, 4:**2166–2169,** *2167*
apple cider vinegar for, 1:123
hibiscus for, 2:1064
jojoba oil for, 2:1242
plantain for, 3:1764
prickly pear cactus for, 3:1811
Rescue Remedy for, 3:1909
skin cancer and, 4:2073, 2167
tea tree oil for, 4:2198
triphala for, 4:2272
witch hazel for, 4:2388
Sundew, for whooping cough, 4:2379
Sunflower, 1:536–537
Sun's soup, 4:**2169–2171**
Sunscreens
skin cancer and, 4:2074
sunburn and, 4:2168, 2169
zinc in, 4:2421
"Sunsetting," Alzheimer's disease and, 1:66
Sunstroke, usnea for, 4:2298
Superantigens, 4:2135
Superego (personality), 3:1847
Superficial gastritis, 2:901
See also Gastritis
Superficial thrombophlebitis, 3:1739, 1740
Supernatural illness causes, curanderismo and, 1:640–641
Superoxide dismutase (SOD)
in barley, 1:204
copper and, 1:603, 604
Lou Gehrig's disease and, 3:1360
manganese and, 3:1422, 1423
for skin cancer, 4:2074
Supplements. *See* Nutritional supplements
SupplementWatch.com (website), 2:844
Support groups
cerebral palsy, 1:443
colitis, 1:571
genital herpes, 2:911
Lou Gehrig's disease, 3:1362
ovarian cancer, 3:1670
ovarian cysts, 3:1676
postpartum depression, 3:1781, 1782
rosacea, 3:1945
schizophrenia, 4:1998
smoking cessation, 4:2093
stress, 4:2152
substance abuse, 4:2162
systemic lupus erythematosus, 4:2189
weight loss, 3:1624
Suppressive therapy, for genital herpes, 2:912
Surfer's ear, 2:1006, 1009
Surgeon General's Report on Nutrition and Health, 2:1014
Surgery
acne, 1:9
anemia, 1:85
angina, 1:92
ankylosing spondylitis, 1:97
bladder cancer, 1:281
boils, 1:303
breast cancer, 1:325
cancer, 1:391
carpal tunnel syndrome, 1:*407,* 409
cataracts, 1:417–418
cirrhosis damage, 1:548
colitis, 1:571
colorectal cancer, 1:580–581
Crohn's disease complications, 1:633–634
deep venous thrombosis, 3:1741
diathermy in, 2:700
diverticulitis, 2:710
ear infections and, 2:734
emphysema, 2:756
endometriosis, 2:760
epididymitis, 2:775
epilepsy, 2:778–779
fractures, 2:864–865
gallstones, 2:880–881
gangrene, 2:886
gelsemium and, 2:909
gum diseases, 2:978
headaches, 2:1005
heart disease, 2:1018–1019
heartburn, 2:1024–1025
heel spurs, 2:1029–1030
hemorrhoids, 2:1034
herniated disks, 2:*1054,* 1057; 3:1366
hiccups, 2:1065
homeopathy for, 2:1086, 1090
hypercortisolemia, 2:1125
hyperparathyroidism, 2:1130
hyperthyroidism, 2:1139
hypothyroidism, 2:1148
ingrown nails, 2:1191
ischemia, 2:1226
jaundice, 2:1236–1237
Kaposi's sarcoma, 2:1258
knee pain, 2:1283
lazy eye, 3:1315
lung cancer, 3:1372
Ménière's disease, 3:1467
neck pain, 3:1586–1587
neuralgia, 3:1597
obesity, 3:1624–1625
obsessive-compulsive disorder, 3:1629
osteoarthritis, 3:1657
osteoporosis-related fractures, 3:1663
ovarian cancer, 3:1669, 1671
ovarian cysts, 3:1674, 1677
pain, 3:1686
pancreatitis, 3:1695, 1696
Parkinson's disease, 3:1709–1710
peptic ulcers, 4:2286
pinched nerves, 3:1754
placebo effect and, 3:1762
pneumonia and, 3:1771
prostate cancer, 3:1827
retinal detachment, 3:1916
rheumatoid arthritis, 3:1927
rosacea, 3:1946
sciatica, 4:2002
scoliosis, 4:2005–2006
sinus infections, 4:2070
skin cancer, 4:2074
sleep apnea, 4:2081–2082
snoring, 4:2098
sprains and strains, 4:2128
staphylococcal infections, 4:2137
sties, 4:2141
supplements for, 4:2420–2421
temporomandibular joint syndrome, 4:2208
tendinitis, 4:2211
tennis elbow, 4:2213
tremors, 4:2263
trepanation, 4:2265, 2266
tuberculosis, 4:2277
urinary incontinence, 4:2293
uterine cancer, 4:2300
uterine fibroids, 4:2303
UTIs, 1:285
varicose veins, 4:2317
vitamin B12 for, 4:2336
See also specific types of surgery
Survival and Prognosis Investigation of Crataegus Extract (SPICE), 2:996
Survival rates. *See* Mortality rates
Susto, curanderismo and, 1:640
Sutherland, William, 1:626, 627, 628; 3:1660
Svadisthana, 1:453
Svedana, for chills, 1:496
Swamp cedar. *See* Thuja
Swamp sassafras. *See* Magnolia
Swank, Roy, 3:1543
Sweat glands, 3:1808
Sweat plant. *See* Boneset
Sweat retention syndrome. *See* Prickly heat
Sweating. *See* Perspiration
Sweating therapies
in detoxification, 2:679
for heavy metal poisoning, 2:1027
for multiple chemical sensitivity, 3:1540
in panchakarma, 3:1689
Swedana. *See* Sweating therapies
Swedish Herbal Institute, 3:1930
Swedish massage, 4:**2171–2174,** *2172*
geriatric massage and, 2:917
overview, 3:1440
pregnancy, 3:1802

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Swedish Pharmacopeia, rhodiola rosea in, 3:1930
Sweet Annie, for laryngitis, 3:1309
Sweet broom. *See* Butcher's broom
Sweet bugle. *See* Bugle weed
Sweet chestnut flower essence, 1:198; 2:850*t*, 852
Sweet clover, 4:*2174*, **2174–2175**
Sweet elm. *See* Slippery elm
Sweet fennel. *See* Fennel
Sweet flag. *See* Calamus
Sweet herb. *See* Eupatorium; Stevia
Sweet honey leaf. *See* Stevia
Sweet licorice. *See* Licorice
Sweet lucerne. *See* Sweet clover
Sweet marjoram
  anxiety, 1:115
  post-traumatic stress disorder, 3:1785
  stress, 3:1785
Sweet orange, 1:139; 4:2393
Sweet round-leaved dock. *See* Rhubarb root
Sweet slumber. *See* Bloodroot
Sweet wood. *See* Licorice
Sweeteners, artificial. *See* Artificial sweeteners
Sweetleaf. *See* Stevia
Sweetness
  Ayurvedic medicine, 1:194–195
  traditional Chinese medicine, 1:503; 2:1043
Sweetweed. *See* Marsh mallow
Sweigart, Lulu, 3:1525
Swelling. *See* Edema; Inflammation
Sweta arka. *See* Arka
Swimmer's ear, 4:*2176*, **2176–2178**
Swine snort. *See* Dandelion
Swinging (Bates method), 1:207
Swollen glands
  malignant lymphoma and, 3:1420
  pinellia for, 3:1757
  yellow dock for, 4:2406
Swollen testicles. *See* Epididymitis
Sycotic miasms, 2:1094
Sydenham's chorea. *See* Chorea
Sylvestus. *See* Valerian
Symadine (amantadine). *See* Amantadine
Symbolism
  anxiety, 1:114–115
  art therapy, 1:145, 146
Symmetrel. *See* Amantadine
Symphytum officinale. *See* Comfrey
Symplocarpus foetidus, for whooping cough, 4:2379
Syncope, 2:711, 712
  See also Dizziness
Syndrome X, 2:1198–1199
Synovial membranes
  juvenile rheumatoid arthritis, 2:1251
  rheumatoid arthritis, 3:1924–1925
Synthetic antioxidants, 1:473
Synthetic estrogen, 1:248
Synthetic insulin, 2:690
Synthetic progesterone, from Mexican yam, 3:1495
Synthetic thyroid hormones, 2:1150
Synthroid, 2:1150
Syntonic optometry, 4:**2178–2179**
The Syntonic Principle (Spitler), 4:2178
Syphilinum, for syphilis, 4:2184
Syphilis, 4:*2179*, **2179–2186**
  arsenicum album for, 1:144
  boswellia for, 1:314
  goldenseal for, 2:948
  Hepar sulphuris for, 2:1035
  lobelia for, 3:1354
  pau d'arco for, 3:1719
  uva ursi for, 4:2305
Syphilitic miasms, 2:1094
Syrup of ipecac. *See* Ipecac
Syrups
  horehound, 2:1103
  mullein, 3:1537
  rose hips, 3:1949
Systematic Classic of Acupuncture (ancient text), 1:13, 16
Systematic desensitization, 1:218, 219; 3:1845
Systemic candidiasis, acidophilus for, 1:4
Systemic fungal infections, 2:876, 877
Systemic lupus erythematosus (SLE), 4:**2186–2189**
  alfalfa and, 1:51
  arsenicum album for, 1:144
  ashwaganda for, 1:152
  DHEA for, 2:683
  fish oil for, 2:841, 842
  ganoderma for, 2:887
  Gerson therapy for, 2:919
  lipase for, 3:1350
  MSM for, 3:1530
  pau d'arco for, 3:1720
  urine therapy for, 4:2295
Systemic onset juvenile rheumatoid arthritis, 2:1252, 1254
Szent-Györgyi, Albert, 1:245–246; 3:1865

T

T lymphocytes
  allergies, 1:53
  chlorella, 1:516
  leukemia, 3:1331, 1332
  maitake, 3:1412, 1413
  Ménière's disease, 3:1465
  overview, 3:1418–1419
  superantigens, 4:2135
t-PA, for strokes, 4:2156
T4GEN (mistletoe extract), 3:1511
TA-Nic (vaccine), 4:2094
Tabacum
  motion sickness, 3:1521
  vomiting, 4:2358
Tabebuia species. *See* Pau d'arco
Tabes dorsalis, 4:2182
Tablework, in Trager psychophysical integration, 4:2260
Tabocas combicurdo, 1:209
Tachycardia
  magnesium for, 3:1405
  mistletoe for, 3:1510
  motherwort for, 3:1518
Tacrine (Cognex), for Alzheimer's disease, 1:69; 2:666
Tadalafil
  impotence, 2:1165
  prostate enlargement, 3:1832
Tae kwon do, 3:1438
Tagetes patula. *See* Marigold
Taheebo. *See* Pau d'arco
Tahitian noni juice. *See* Noni
T'ai chi, 4:**2191–2195**, *2192*
  anxiety, 1:115
  as exercise, 2:804–805
  genital herpes, 2:911
  glaucoma, 2:934
  heart attacks, 2:1012
  hypercortisolemia, 2:1125
  hyperopia, 2:1127
  leukemia, 3:1334
  lung cancer, 3:1372
  lymphomas, 3:1420
  meningitis, 3:1472
  multiple sclerosis, 3:1543
  neuralgia, 3:1597
  ovarian cancer, 3:1670
  ovarian cysts, 3:1676
  overview, 3:1438
  pancreatitis, 3:1695
  panic disorders, 3:1698
  Parkinson's disease, 3:1708
  peripheral neuropathy, 3:1734
  phobias, 3:1743
  post-traumatic stress disorder, 3:1785
  rheumatoid arthritis, 3:1926
  schizophrenia, 4:1999
  stress, 4:2151
  strokes, 4:2156
  substance abuse, 4:2161
  traditional Chinese medicine and, 4:2258
Tail spines (stingrays), 1:260
Tailor's bunions, 1:356
Tailwort. *See* Borage oil

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Takata, Hawayo, 3:1899–1900
Talcum powder, ovarian cancer and, 3:1669
Tamiflu (oseltamavir phosphate), for influenza, 2:1188, 1189
Tamoxifen
  for breast cancer, 1:326, 392
  hot flashes and, 2:1108
  vitamin D and, 4:2347
Tampons, 3:1480–1481; 4:2250–2251, 2252
Tanacetum parthenium. *See* Feverfew
Tang dynasty, 1:501; 2:1041
Tang Gui. *See* Dong quai
Tang kuei. *See* Dong quai
Tang shen. *See* Codonopsis root
Tangerine peel, 1:77, 174; 4:**2195–2197**
Tanning beds, radiation injuries and, 3:1873
Tannins
  in black walnut, 1:278
  for cradle cap, 1:620
  in kola nuts, 2:1288
  overview, 1:247
  in uva ursi, 4:2305
  in witch hazel, 4:2388–2389, 2391
Tansy, 3:1309; 4:2393
Tantra yoga, 4:2412
Tao, Xue-Lian, 4:2234, 2235
Tao Hong, 2:904
Tao te Ching, 4:2193
Taoism
  Chinese food cures, 1:502
  feng shui, 2:821
  martial arts, 3:1436
  qigong, 3:1859
  t'ai chi, 4:2191, 2193
  traditional Chinese medicine, 2:1042; 4:2255, 2256
Tapazole (methimazole), for hyperthyroidism, 2:1139
Tape tests (parasitic infections), 3:1704; 4:2393
Tapeworms, 3:1703; 4:2391–2392
Tapotement (Swedish massage), 4:2173
Tapping, for bronchitis, 1:340
Tar shampoos and salves, 2:661–662, 674
Taraxacum officinale. *See* Dandelion
Tardieu, Ambrose, 1:145
Tardive dyskinesia, vitamin E for, 4:2350
Tarragon, 1:137*t*; 4:2144
Tartar (dental), 2:976
Tastes
  Ayurvedic medicine, 1:194–195
  Chinese food cures, 1:503
  Shangri-la diet, 4:2037, 2038–2039, 2040
  traditional Chinese medicine, 2:1043
  vegetarianism, 4:2327
Tattoos, hepatitis and, 2:1040
Taub, Edward, 2:693
Taurine, 2:1018; 3:1919
Taxol (paclitaxel), 2:1259; 3:1671
Taylor, Charles, 2:917; 3:1439; 4:2171
Taylor, George, 2:917; 3:1439; 4:2171
Tazaki, Hiroshi, 3:1413
Tazarotene, for psoriasis, 3:1837
TB. *See* Tuberculosis
TBHQ (tertiary butyhydroquinone), 2:702*t*
TCM. *See* Traditional Chinese medicine
Td booster vaccines, 4:2216
Tea
  angina, 1:91
  asthma, 1:156
  cradle cap, 1:620
  heart attacks, 2:1012
  heart disease, 2:1018
  theanine in, 4:2220–2221
  See also Infusions
Tea de France. *See* Lemon balm
Tea tree oil, 4:*2197*, **2197–2199**
  abscesses, 1:2
  AIDS, 1:36
  aromatherapy uses, 1:137*t*, 139
  athlete's foot, 1:168, 169
  bedsores, 1:211
  blisters, 1:290
  boils, 1:303
  burns, 1:362
  cuts and scratches, 1:648
  dandruff, 2:661
  emphysema, 2:755
  fungal infections, 2:877
  genital herpes, 2:912
  genital warts, 2:914
  in hydrotherapy, 2:1122
  impetigo, 2:1163
  infections, 2:1176
  ingrown nails, 2:1191
  itching, 2:1229
  jock itch, 2:1240
  lice infestations, 3:1338
  parasitic infections, 3:1705
  sore throat, 4:1987
  sties, 4:2141
  trichomoniasis, 4:2268
  vaginitis, 4:2309
  warts, 4:2363
  whooping cough, 4:2380
  wound care, 1:295
  wounds, 4:2399
  yeast infections, 4:2404
Teaberry. *See* Wintergreen
Teak tree. *See* Shatavari
Tectona grandis. *See* Shatavari
Teel oil. *See* Sesame oil
Teen nutrition, 4:**2199–2204**, 2199*t*
Teenagers. *See* Adolescents
Teeth
  acupuncture points, 2:*1076*
  grapefruit seed extract for, 2:965
  horsetail for, 2:1107
  See also Dental caries
Teeth clenching and grinding. *See* Bruxism
Teething, 1:455; 4:**2204–2206**
Tegaserod, 1:600
Tegison (etrentinate), for psoriasis, 3:1837–1838
Tegretol. *See* Carbamazepine
Telangiectasia, from rosacea, 3:1944
Tellington-Jones, Linda, 1:183
Tellington touch (Ttouch), 1:183–184
Tellurium, 3:1333, 1371
Telogen effluvium, 2:983
Tempaku, Tamai, 4:2046
Temperature sensors, for biofeedback, 1:244
Temporal resection, for epilepsy, 2:779
Temporomandibular joint disorder (TMJ), 4:**2206–2208**
  biofeedback for, 1:242, 244
  bruxism and, 1:343
  craniosacral therapy for, 1:627, 628
  earaches and, 2:737
  holistic dentistry and, 2:1078
  massage therapy for, 3:1440
  myotherapy for, 3:1558
  Russian massage for, 3:1959
  Swedish massage for, 4:2172
  tinnitus and, 4:2242
  trigger point therapy for, 4:2270
rTen-byed (Tibetan medicine), 4:2240
Tendinitis, 4:*2209*, **2209–2211**
  apitherapy for, 4:2331
  devil's claw for, 2:681
  glucosamine for, 2:936
  lemongrass for, 3:1329, 1330
  selenium for, 4:2009
  trigger point therapy for, 4:2270
  tui na massage for, 4:2257
  white willow for, 4:2376
Tendrilled fritillary bulb. *See* Fritillaria
Tenex (guanfacine), for Tourette syndrome, 4:2250
Tennis elbow, 4:**2211–2214**, *2212*
TENS. *See* Transcutaneous electrical nerve stimulation
Tension headaches, 2:1001, 1002, 1003
  See also Headaches
Terc, Phillip, 1:119; 4:2330
Teriparatide, for osteoporosis, 3:1478
Terman, Jiuan Su, 4:2008
Terman, Michael, 4:2008

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Terminal illness
music therapy, 3:1552–1553
therapeutic touch, 4:2223
See also specific diseases
Terrorism
bioterrorism, 2:1175, 1186
radiation injuries and, 3:1874
ricin and, 1:413–414
stress response and, 4:2151
Tertiary butyhydroquinone (TBHQ), 2:702*t*
Tertiary syphilis, 4:2181–2182
See also Syphilis
Test anxiety, dance therapy for, 2:657
Test Anxiety Inventory, 2:657
Test-card practice (Bates method), 1:207
Testicles, swollen. *See* Epididymitis
Testicles, undescended, boswellia for, 1:314
Testolactone, for McCune-Albright syndrome, 3:1677
Testosterone
androstenedione and, 1:78, 79
in HRT, 1:249
natural hormone replacement therapy and, 3:1570, 1571, 1572, 1574
polycystic ovarian syndrome and, 3:1777, 1778, 1779
saliva sampling, 2:1110
saw palmetto and, 4:1979
zinc and, 4:2421
Testosterone replacement therapy, 3:1478
Tetanus, 4:*2214*, **2214–2217**
animal bites and, 1:261, 262
grapefruit seed extract for, 2:965
marijuana for, 3:1432
Tetany, 3:1404
Tetracycline antibiotics
berberines and, 1:267
canker sores, 1:399
gonorrhea, 2:951
malaria, 3:1417
peptic ulcers, 4:2286
pneumonia, 3:1772
rosacea, 3:1946
stomachaches, 4:2144
Tetradotoxin poisoning, 2:860
Tetrahydrocannabinol (THC)
glaucoma, 2:934
in marijuana, 3:1430, 1432
Tetterwort. *See* Bloodroot
Teucrium, for worms, 4:2393
Texas Ethyl Acetate, 4:2234
Texas Journal of Rural Health, 3:1811
TH5 pressure point, 1:14
Thai massage, 4:*2217*, **2217–2220**, *2218*
Thalamotomy, 3:1710; 4:2263
Thalassemias, 1:84, 86
Thallium scanning, for atherosclerosis, 1:166
THC. *See* Tetrahydrocannabinol
Theanine, 4:**2220–2222**
Theobromine, in kola nuts, 2:1286, 1287, 1288
Theophrastus (botanist), 1:316; 2:1048
Theophylline
for asthma, 1:155, 156, 157
cayenne and, 1:428
Theory of miasms. *See* Miasms theory
Therapeutic baths
athlete's foot, 1:168–169
bedwetting, 1:213
chickenpox, 1:478
dermatitis, 2:674
eczema, 2:742
fever, 2:832
with French green clay, 2:867
itching, 2:1229
overview, 2:1121–1122
with peppermint, 3:1732
pityriasis rosea, 3:1760
prickly heat, 3:1809
psoriasis, 3:1836
with saltwater, 4:2101
Therapeutic body brushing, for sensory integration disorder, 4:2026
Therapeutic Lifestyle Changes diet, 2:1015*t*
Therapeutic riding, 3:1526, 1738
Therapeutic touch (TT), 4:**2222–2225**
aura therapy and, 1:183–184
energy medicine and, 2:762
for menopause, 3:1476
The Therapeutic Touch: How to Use Your Hands to Help or Heal (Krieger), 4:2223
Therapeutic vomiting
heavy metal poisoning, 2:1027
in panchakarma, 3:1689, 1690
Therapy Dogs, Inc., 3:1739
Therapy Dogs International, 3:1739
Theridion, for Ménière's disease, 3:1466
Thermal biofeedback, 1:243; 2:1004
Thermal burns, defined, 1:361
See also Burns
Thermogenic diet, 3:1456, 1457
Thermography, 4:*2225*, **2225–2227**
Thermometers, 2:831
Theta brain waves, 1:243
Theta state of consciousness, 4:2022, 2023
Thiamine, 4:**2228–2230**, 2228*t*
alcohol withdrawal and, 1:44
Alzheimer's disease, 1:67; 4:2338
cerebral palsy, 1:443
lead poisoning, 3:1319
memory loss and, 3:1461, 1463
Ménière's disease, 3:1467
menstruation disorders, 3:1482
peripheral neuropathy, 3:1734
in wheat germ, 4:2368
Thiamine deficiency, 4:2229, 2339
Thiazide diuretics, for kidney stones, 2:1278
Thiazoladinediones, 2:1069
Thiazolidinediones, 2:1200
Thin-Prep tests, 1:513
Thiosulphinate, in *Allium cepa*, 1:58
Third-degree burns, defined, 1:361
See also Burns
Third-degree sprains and strains, 4:2127, 2128
Third eye. *See* Mind's eye
mThong-byed (Tibetan medicine), 4:2240
Thoracentesis, for pleurisy diagnosis, 3:1767
Thoracoplasty, for tuberculosis, 4:2277
Thorax (journal), 1:369
Thorazine (chlorpromazine), for hiccups, 2:1065
Thorny burr. *See* Burdock root
Thoroughwort. *See* Boneset
Thought insertion/withdrawal, schizophrenia and, 4:1994
Thread ligation, for warts, 4:2363
Threatened species. *See* Endangered species
Three-day measles. *See* Rubella
Three-fold physical body, 1:103
Three-leafed grass. *See* Red clover
Three-level breathing, 1:331
Three-seven root. *See* Notoginseng root
Three Stage Model of Stress Response, 4:2150
Three-wing-nut. *See* Thunder god vine
Threonine, 1:74
Throat, sore. *See* Sore throat
Throat chakra, 1:453
Throat culture tests
scarlet fever, 4:1987
strep throat, 4:2148
tonsillitis, 4:2244–2245
Throat Inflammation Pills, 3:1308
Throat ulcers, sheep sorrel for, 4:2042
Thrombolytic agents. *See* Fibrinolytic agents
Thrombophlebitis. *See* Phlebitis
Thrombosis
atherosclerosis, 1:165
heart disease, 2:1016
strokes, 4:2154, 2155
Thrombus, 1:291
See also Blood clots
Throw-wort. *See* Motherwort

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Thrush, 4:*2403*
grapefruit seed extract for, 2:965
overview, 4:2403, 2404, 2405
tea tree oil for, 4:2198
Thrust techniques (osteopathy), 3:1660
Thuja, 4:*2230,* **2230–2233**
vs. biota, 1:251
cervical dysplasia, 1:451
genital warts, 2:914
gonorrhea, 2:950
in herbal cold remedies, 2:1046
Thuja plicata. See Red cedar
Thujone, 4:2232–2233, 2396, 2397
Thunder god vine, 4:2188, **2233–2235**
Thur-sel (Tibetan medicine), 4:2239
Thus Thou Shalt Live (Kneipp), 2:1285
Thyme, 4:**2235–2238,** *2236, 2237*
aromatherapy uses, 1:137*t*
blisters, 1:290
body odor, 1:301
bronchitis, 1:340
cold sores, 1:563
common cold, 2:1046, 1047
constipation, 1:599
dysbiosis, 2:724
emphysema, 2:754
infections, 2:1176
irritable bowel syndrome, 2:1220
laryngitis, 3:1308
nausea, 3:1583
rashes, 3:1882
rhinitis, 3:1929
sinus infections, 4:2069
sore throat, 4:2106
staphylococcal infections, 4:2136
stomachaches, 4:2144
strep throat, 4:2148
wheezing, 4:2372
whooping cough, 4:2379, 2380
yeast infections, 4:2404
Thyme oil, 3:1639–1640, 1641
Thymol, for lice infestations, 3:1338
Thymus extracts, for hepatitis, 2:1039
Thymus vulgaris. See Thyme
Thyroid cancer, fritillaria for, 2:869
Thyroid disorders
amenorrhea and, 1:71
edema from, 2:745
kelp for, 2:1269
lycopus for, 3:1383
sargassum seaweed and, 4:1975, 1976
therapeutic touch for, 4:2223
See also specific disorders
Thyroid extracts, for hypothyroidism, 2:1150
Thyroid gland, 2:1148
Thyroid hormones
Hashimoto's thyroiditis, 2:990
hypothyroidism, 2:1147, 1148, 1149, 1150
iodine, 2:1204
Thyroid scans, 2:1138
Thyroid-stimulating hormone (TSH)
amenorrhea, 1:71
Hashimoto's thyroiditis, 2:990, 991
hyperthyroidism, 2:1137
lycopus, 3:1383
Thyroid-stimulating hormone (TSH) assay tests, 2:1149
Thyroidectomy, 2:991, 1139, 1148
Thyrotropin. *See* Thyroid-stimulating hormone
Thyroxine (T4)
Hashimoto's thyroiditis, 2:990, 991
hyperthyroidism, 2:1137
hypothyroidism, 2:1147, 1148, 1149, 1150
iodine, 2:1204
lycopus, 3:1383
Tian ma. *See* Gastrodia
Tian ma mihuanjun, 2:904, 905
Tian wang bu xin dan, 1:251
TIAs. *See* Transient ischemic attacks
Tibetan Medical Institute, 4:2240
Tibetan medicine, 4:**2239–2241**
Tibetan sound therapy, 4:*2108,* 2110
Tic douloureux. *See* Trigeminal neuralgia
Ticks
bites from, 1:262
brewer's yeast and, 1:336
Lyme disease and, 3:1384–1386, 1387
Tickweed. *See* Pennyroyal
Tics, Tourette syndrome and, 4:2247, 2248–2249
Tien qi ginseng. *See* Notoginseng root
Tierra, Michael, 4:2165, 2166
TIG (human tetanus immune globulin), 4:2216
Tikta, for hangovers, 2:988
Tilia europaea. See Linden
Tilia x vulgaris. See Lime blossom
Tillett, W.S., 1:105
Time (magazine), 1:123; 2:1113; 4:2319
Timeless Healing: The Power and Biology of Belief (Benson), 3:1906
The Times (newspaper), 4:2319
Tinactin (tolnaftate), for jock itch, 2:1241
Tinbergen, Nikolaas, 1:47
Tinctures
American ginseng, 2:925
arnica, 1:135–136
blessed thistle, 1:289
burdock, 1:360
chickweed, 1:480
cramp bark, 1:623
dandelion, 2:659
defined, 1:318
echinacea, 2:740
fennel, 2:825
feverfew, 2:835
goldenseal, 2:949
horehound, 2:1103
licorice, 3:1343
mugwort, 3:1534
myrrh, 3:1561
parsley, 3:1713
plantain, 3:1765
red clover, 3:1891–1892
rose hips, 3:1949
spearmint, 4:2119
St. John's wort, 4:2132
thyme, 4:2237–2238
wormwood, 4:2396
yarrow, 4:2402–2403
Tinder plant. *See* Mullein
Tinea cruris. *See* Jock itch
Tinea gladiatorum, 2:876
Tinea pedis. *See* Athlete's foot
Tinea unguium, 1:168; 2:876–877
Tinea versicolor, selenium for, 4:2009
Tinnevelly senna. *See* Senna
Tinnitus, 4:*2241,* **2241–2244**
cornus for, 1:613
hearing loss and, 2:1008, 1009
Ménière's disease and, 3:1465–1467
niacin for, 3:1600
osteopathy for, 3:1658
zinc for, 4:2421
Tinnitus Retraining Therapy, 4:2242–2243
Tiririca. *See* Cyperus
Tisanes, 1:455
Tisserand, Robert, 1:138
Tissue salt therapy, 1:432–434; 3:1629
Tizanidine
migraine, 3:1501
multiple sclerosis, 2:778
rebound headaches, 3:1500
TMJ. *See* Temporomandibular joint disorder
TNM cancer staging, 1:324
Tobacco. *See* Smoking
Tocopherol. *See* Vitamin E
Todd, Mabel Elsworth, 3:1525
Toenail infections, 1:168
Tohza. *See* Lomatium
Tolerable Upper Intake Level (UL)
vitamin C, 4:2344
vitamin E, 4:2351
See also Recommended daily allowances
Tolerance (physiology)
alcohol, 1:41
caffeine, 1:374
substance abuse, 4:2158
Tolerance-fading memory, 1:180
Tolnaftate, for jock itch, 2:1241

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Tolu balsam, for emphysema, 2:754
Tom Rong. *See* Garcinia
Tomatis, Alfred, 1:179, 180, 181; 4:2107, 2108–2109
Tomatis Centers, 4:2111
Tomatis method. *See* Auditory integration training
Tomato products, lycopene in, 1:405; 3:1377, *1378*, 1378–1379
Tongue, traditional Chinese medicine and, 4:2258
Tongue blades, 2:986
Tongue grass. *See* Chickweed
Tongue retaining devices, for sleep apnea, 4:2081
Tonic pupil, defined, 1:22
See also Adie's pupil
Tonics
for anemia, 1:85
ashwaganda in, 1:151
blessed thistle, 1:288
boneset, 1:306
chamomile, 1:455
cordyceps, 1:608
defined, 2:1051
fo ti in, 2:855
kombucha, 2:1290
maitake, 3:1412
nettle, 3:1591
noni, 3:1605
plantain, 3:1764
prince's pine, 3:1814
reishi mushroom, 3:1903
sage, 4:1970
schisandra, 4:1989
Tonification (acupressure), 1:14, 18
Toning (sound therapy), 4:2109–2110
Tonometers, 2:933
Tonsillitis, 4:*2244*, **2244–2246**
goldenseal for, 2:948
grapefruit seed extract for, 2:965
lomatium for, 3:1357
mullein for, 3:1536
osha for, 3:1652, 1653
phytolacca for, 3:1748
Tonsils, snoring and, 4:2097
Tooth decay. *See* Dental caries
Toothaches, 4:**2246–2247**
chamomile for, 1:455
Jamaican dogwood for, 2:1231
kava kava for, 2:1261
marsh mallow for, 3:1434
mercurius vivus for, 3:1484
myrrh for, 3:1561
nutmeg for, 3:1610, 1611
oregano for, 3:1639
parsley for, 3:1712
plantain for, 3:1764
red cedar for, 3:1889
ruta for, 3:1961
shiatsu for, 4:2046
thyme for, 4:2236
turmeric for, 1:642
white willow for, 4:2376
yarrow for, 4:2402
Toothpaste
cinnamon in, 1:543
for itching, 2:1229
neem in, 3:1588
sage in, 4:1970
Toothpick plant. *See* Khella
Topamax (topiramate), 2:778; 3:1501
Tophi, in gout, 2:956, 958
Topical antibiotics. *See* Antibiotics
Topical corticosteroids. *See* Corticosteroids
Topiramate, 2:778; 3:1501
TORCH antibody tests, for genital herpes, 2:911
Torches. *See* Mullein
Toremifene, for breast cancer, 1:326
Toric contact lenses, 1:160
Total allergy syndrome. *See* Multiple chemical sensitivity
Touch Research Institutes, 2:1172
Touch therapies
energy medicine and, 2:762
massage therapy as, 3:1440
Rubenfeld synergy method as, 3:1958
Tellington touch, 1:183–184
See also Craniosacral therapy; Therapeutic touch
Tourette, Georges Gilles de la, 4:2247
Tourette syndrome, 4:**2247–2250**
Tourniquets, 4:2399
Townsend Letter: The Examiner of Alternative Medicine, 2:785
Toxemia
defined, 2:677–678
magnesium for, 3:1405
See also Blood poisoning
Toxic colon syndrome, 2:678
Toxic megacolon, 2:1183, 1185
Toxic shock syndrome (TSS), 3:1481; 4:2135, **2250–2252**
Toxicity
aconite, 1:10, 11, 12
alisma, 1:52
amygdalin, 1:129–130
angelica, 1:87
arka, 1:133
arnica, 1:136
asthma pharmaceuticals, 1:155
belladonna, 1:222, 223
bloodroot, 1:297
blue cohosh, 1:299
bryonia, 1:346
cantharis, 1:401
comfrey, 1:588
copper, 1:604, 605–606
ephedra, 2:770, 772
food additives, 2:702*t*
fritillaria, 2:869, 870
gelsemium, 2:909, 910
household poisons, 1:468–468, 473
khella, 2:1271
lobelia, 3:1355
mineral supplements, 1:463
mistletoe, 3:1511, 1512
nutmeg, 3:1611
pennyroyal, 3:1727
phosphorus, 3:1745, 1746–1747
phytolacca, 3:1748
pinellia, 3:1758
potassium, 3:1789–1790
pyridoxine, 3:1858
red cedar, 3:1889
rhubarb, 3:1933, 1935
ricin, 1:413
ruta, 3:1960
sassafras, 4:1977, 1978
selenium, 4:2010, 2012
silver, 1:573
St. John's wort, 4:2133
thuja, 4:2232–2233
thunder god vine, 4:2233, 2235
thyme oil, 3:1639
vitamin A, 1:111, 493; 4:2334
vitamin D, 1:493
wormwood, 4:2397
zinc, 4:2422
Toxoplasmosis, 3:1704, 1705
Toys, lead poisoning and, 3:1317
Toywort. *See* Shepherd's purse
Toza. *See* Lomatium
Trace minerals
for ADHD, 1:177
in garlic, 2:894
overview, 1:462–463; 3:1613
for systemic lupus erythematosus, 4:2188
See also specific minerals
Tracheotomy, for sleep apnea, 4:2081
Traction, for fractures, 2:865
Traction headaches, 2:1001
Traditional African medicine, 4:*2253*, **2253–2254**
grains-of-paradise in, 2:959
malaria, 3:1416
yohimbe in, 4:2415
Traditional Chinese medicine (TCM), 2:**1041–1045**; 4:**2254–2259**
aconite in, 1:11
agastache in, 1:27, 28
aging, 1:30
AIDS, 1:36–37
alfalfa in, 1:50
alisma in, 1:51–52
allergies, 1:55
American ginseng in, 2:924
andrographis, 1:76–77
anemarrhena in, 1:80–81
anemia, 1:85
angina, 1:91
anxiety, 1:115
apricot seed in, 1:129
asthma, 1:156

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Traditional Chinese medicine (TCM) *(continued)*
astigmatism, 1:160
astralagus in, 1:163, 164
atherosclerosis, 1:167
atractylodes in, 1:173–174
aucklandia in, 1:178–179
Ayurvedic medicine and, 1:192
biota in, 1:251–252
bipolar disorder, 1:257
bitter melon in, 1:264
botanical medicine and, 1:316–317
bronchitis, 1:340
bulimia nervosa, 1:353
burns, 1:362
cancer diagnosis, 1:388
cancer treatment, 1:389
carpal tunnel syndrome, 1:408, 409
cayenne in, 1:427
chemical poisoning, 1:471
chickenpox, 1:478
chickweed in, 1:480
chills, 1:496
Chinese skullcap in, 4:2076, 2077
Chinese thoroughwax in, 1:504–505
Chinese yams in, 1:506–507
chlamydia, 1:514
chronic fatigue syndrome, 1:533
cicada in, 1:540–542, *541*
cinnamon in, 1:543, 544
cirrhosis, 1:548
club moss in, 1:550
cnidium seeds in, 1:551–553
codonopsis root in, 1:553–554
coix in, 1:557–558
cold sores, 1:563
color therapy and, 1:576
coltsfoot in, 1:585
common cold, 1:591
coptis in, 1:606–607
cornus in, 1:613–614
corydalis in, 1:615
cough, 1:618–619
cuscuta in, 1:645–646
cyperus in, 1:651
depression, 2:670
detoxification and, 2:678
diabetes, 2:688–689
diarrhea, 2:698
dong quai in, 1:87–88
dry mouth, 2:721
dysmenorrhea, 2:730
eczema, 2:743
edema, 2:746
emphysema, 2:754
ephedra in, 2:770, 771
epididymitis, 2:774
epimedium in, 2:781–782
eucommia bark in, 2:795–796
evodia fruit in, 2:801–802
fatigue, 2:817
fever, 2:832
fibrocystic breast disease, 2:838
field mint in, 4:2117
fo ti in, 2:854–855
food cures system, 1:501–504
fractures, 2:864
fritillaria in, 2:869–870
gallstones, 2:880
gangrene, 2:886
ganoderma in, 2:887–888
gardenia in, 2:893–894
gastritis, 2:903
gastrodia in, 2:904, 905
gastroenteritis, 2:907
genital herpes, 2:912
genital warts, 2:914
gentiana in, 2:916
grains-of-paradise in, 2:960
gum diseases, 2:978
hair loss, 2:984
halitosis, 2:985
hay fever, 1:55
hearing loss, 2:1009
heart disease, 2:1018
heartburn, 2:1024
hemorrhoids, 2:1033
herb classification and, 2:1051
as holistic medicine, 2:1080, 1081
hops in, 2:1100
horse chestnut in, 2:1105
hot flashes, 2:1109
hypercortisolemia, 2:1125
hyperopia, 2:1127
hyperthyroidism, 2:1139
impotence, 2:1165
indigestion, 2:1167*t*, 1169
infertility, 2:1180–1181, 1181
inflammatory bowel disease, 2:1184
influenza, 2:1188
insomnia, 2:1196
itching, 2:1229
jaundice, 2:1236
jock itch, 2:1240
Kampo medicine and, 2:1257
kidney infections, 2:1274
kidney stones, 2:1278
knee pain, 2:1283
Korean ginseng in, 2:927–929
kudzu in, 2:1291–1292
laryngitis, 3:1308
leukemia, 3:1334
licorice in, 3:1342
low back pain, 3:1365
lung cancer, 3:1371
lycium fruit in, 3:1376–1377
Lyme disease, 3:1386
lymphomas, 3:1420
magnolia in, 3:1410
malaria, 3:1416
mangosteen in, 3:1425
martial arts and, 3:1436
massage therapy in, 1:498–501
measles, 3:1446
meningitis, 3:1472
mercury in, 3:1487
mononucleosis, 3:1515
motion sickness, 3:1521
multiple sclerosis, 3:1543
neck pain, 3:1586
notoginseng in, 3:1608–1609
nutmeg in, 3:1610, 1611
obsessive-compulsive disorder, 3:1629
ophiopogon in, 3:1636–1638
osteoarthritis, 3:1656
ovarian cancer, 3:1670
ovarian cysts, 3:1676
panic disorders, 3:1698
peptic ulcers, 4:2286
pinched nerves, 3:1754
pinellia in, 3:1757–1758
pleurisy, 3:1768
postpartum depression, 3:1781
pregnancy, 3:1799
premenstrual syndrome, 3:1805
prickly heat, 3:1809
psoralea seeds in, 3:1834
psyllium in, 3:1849, 1850
pulsatilla in, 3:1852
pulse diagnosis in, 3:1855–1856
rashes, 3:1882
Raynaud's syndrome, 3:1887
reishi mushroom in, 3:1903
retinopathy, 3:1919
rhinitis, 3:1929
rhodiola rosea in, 3:1930
rhubarb in, 3:1934
rubella, 3:1956
safflower in, 4:1965, 1967
sargassum seaweed in, 4:1975, 1976
scallion in, 4:1983, 1984
scarlet fever, 4:1987
schisandra in, 4:1989–1990
sexual dysfunction and, 4:2032
shepherd's purse in, 4:2044
shingles, 4:2053
Siberian ginseng in, 2:930
sleep disorders, 4:2085
sprains and strains, 4:2128
stomachaches, 4:2144
syphilis, 4:2184
systemic lupus erythematosus, 4:2188
tangerine peel in, 4:2195–2196
tendinitis, 4:2210
tetanus, 4:2215
thuja in, 4:2231–2232
thunder god vine in, 4:2234
tuberculosis, 4:2277
turmeric in, 1:641–643; 4:2280
urinary incontinence, 4:2293
uterine fibroids, 4:2302
vomiting, 4:2358
white peony root in, 4:2374–2375
whooping cough, 4:2380
worms, 4:2393
See also Acupressure; Acupuncture; Cupping; Moxibustion
Trager, Milton, 3:1525; 4:2259, 2261
Trager Institute, 4:2259, 2261
Trager psychophysical integration, 3:1525; 4:**2259–2261**
Training. *See* Education and training

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Trance state, shamanism and, 4:2036
Tranquility tea, for sleep disorders, 4:2085
Tranquilizers. *See* Anti-anxiety agents; Sedatives
Trans-anethole, in fennel, 2:824
Trans-fatty acids
  health risks, 2:785, 786–787
  senior nutrition and, 4:2016
Transactional analysis, 3:1848
Transcendental meditation, 1:167; 3:1450
Transcranial magnetic stimulation, 1:258; 3:1409
Transcutaneous electrical nerve stimulation (TENS)
  carpal tunnel syndrome, 1:408
  dysmenorrhea, 2:730
  headaches, 2:1004
  itching, 2:1229
  Ménière's disease, 3:1467
  menstruation disorders, 3:1483
  migraine, 3:1500
  neuralgia, 3:1597
  pinched nerves, 3:1754
  temporomandibular joint syndrome, 4:2208
  vomiting, 4:2359
Transient insomnia, 2:1194
Transient ischemic attacks (TIAs)
  cerebral vascular insufficiency and, 1:446
  defined, 2:1222; 4:2154
  symptoms, 2:1224
  treatment, 2:1226
Transition stage (childbirth), 1:483
Transition zone (cervix), 1:449
Transitional formula, for menopause, 3:1476
Transplantation
  bone marrow, 1:392
  Kaposi's sarcoma and, 2:1258–1259
  liver, 1:548
  lung, 2:756
  pancreas, 2:690
  parasitic infections and, 3:1703
Transrectal ultrasounds, for prostate cancer, 3:1826
Transurethral needle ablation (TUNA), for prostate enlargement, 3:1832
Transurethral resection procedure (TURP), 3:1827, 1832
Trastuzumab, for breast cancer, 1:326
Trauma. *See* Injuries; Psychic trauma
Trauma reflex, 4:2103
Traumatic cataracts, 1:416
Travel
  phlebitis and, 3:1740
  spiritual journeys in shamanism, 4:2036
  See also Air travel
Traveler's diarrhea
  acidophilus, 1:4
  causes, 2:860*t*
  overview, 2:698
Travell, Janet, 3:1557; 4:2269
Trazodone, 2:671; 4:2086
Tree of life. *See* Thuja
Trefoil. *See* Red clover
Trematodes, 4:2392–2393
Tremerol, 1:307
Tremor control therapy, 4:2263
Tremors, 4:**2261–2264**
  corydalis for, 1:615
  magnetic therapy for, 3:1409
  Parkinson's disease and, 3:1707
Trench fever, lice infestations and, 3:1337
Trench mouth, 2:976, 977
Trepanation, 4:*2264*, **2264–2267**
Treponema pallidum, syphilis from, 4:2180–2181, 2183
Treponemal antibody tests, for syphilis, 4:2183
Tri-est hormone replacement therapy, 1:249
Trichloroacetic acid, for genital warts, 2:914
Trichomoniasis, 4:*2267*, **2267–2269**, 2308, 2309, 2310
Trichophyton species, athlete's foot and, 1:168
Trichosanthes kirilowii, for chickenpox, 1:478
Trichotillomania, hair loss and, 2:983, 984
Tricyclic antidepressants
  ADHD, 1:177
  anxiety, 1:116
  depression, 2:671
  headaches, 2:1005
  panic disorders, 3:1699
  peripheral neuropathy, 3:1735
  postherpetic neuralgia, 3:1597
  premenstrual dysphoric disorder, 3:1483
Trientalis. *See* Lysimachia
Trientalis europaea. *See* Wintergreen
Trifolium pratense. *See* Red clover
Trigeminal neuralgia, 1:234; 3:1595, 1596
Trigger point therapy, 4:**2269–2271**
  myotherapy and, 3:1557–1558
  pregnancy, 3:1802
Trigger points, fibromyalgia, 2:839
Trigger-zone breast pain, 2:837
Triglycerides
  atherosclerosis and, 1:165
  Chinese skullcap and, 4:2076
  chromium and, 1:529
  medium-chain, 3:1456–1468
  red yeast rice extract and, 3:1893
Trigonella foenum-graecum. *See* Fenugreek
Trigrams (feng shui), 2:821–823, *822*
Triiodothyronine (T3)
  Hashimoto's thyroiditis, 2:990
  hyperthyroidism, 2:1137
  hypothyroidism, 2:1147, 1148, 1149, 1150
  iodine, 2:1204
Trikatu
  chills, 1:496
  stomachaches, 4:2144
  wheezing, 4:2373
  worms, 4:2393
Trimethoprim, for kidney infections, 2:1274
Trinity College, 1:189
Triphala, 4:2017, **2271–2273**, 2393
Triple therapy, for gastritis, 2:903
Triptans, for headaches, 2:1005; 3:1500
Tripterygii Tablet, for systemic lupus erythematosus, 4:2188
Tripterygium wilfordii. *See* Thunder god vine
Trismus, tetanus and, 4:2215
Triterpenoids, in gotu kola, 2:952, 954
Triticum aestivum, 1:174
Trituration
  calcarea carbonica, 1:376
  homeopathic remedies, 2:1089, 1090
Troglitizone, for diabetes, 2:689
Trowbridge, John Parks, 1:253
True lavender. *See* Lavender
True sage. *See* Sage
True unicorn root, 2:1165; 4:2299
The Truth About Eye Exercises (Pollack), 1:207
Tryptophan, 1:74; 4:2085
TSH. *See* Thyroid-stimulating hormone
Tsim-byed (Tibetan medicine), 4:2240
Tsosi, Denet, 3:1567
TT. *See* Therapeutic touch
Ttouch (Tellington touch), 1:183–184
Tu Jing Jie, for worms, 4:2393
Tu si zi. *See* Cuscuta
Tubal pregnancies, 1:512
Tuber curcumae. *See* Turmeric
Tubercle bacillus. *See* Tuberculosis
Tuberculin skin tests, 4:2276
Tuberculinic miasms, 2:1094
Tuberculosis, 4:*2273*, **2273–2278**, *2274*
  American ginseng for, 2:924
  anemarrhena for, 1:80
  ashwaganda for, 1:152
  Bacille Calmette-Guérin and, 1:281; 4:2287
  bugle weed for, 1:351

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Tuberculosis *(continued)*
fritillaria for, 2:869, 870
Gerson therapy for, 2:919
goldenrod for, 2:947
hibiscus for, 2:1064
hops for, 2:1100
horehound for, 2:1102
horsetail for, 2:1107
Iceland moss for, 2:1155
juniper for, 2:1249
laryngitis and, 3:1308, 1309
lomatium for, 3:1356, 1357
lycopus for, 3:1383
lysimachia for, 3:1391
mullein for, 3:1535, 1536
nettle for, 3:1592
noni for, 3:1605
ophiopogon for, 3:1637
ox-eye daisy for, 1:536, 537
pau d'arco for, 3:1720
plantain for, 3:1764
potassium and, 3:1789
prince's pine for, 3:1814
psoralea seeds for, 3:1834
red cedar for, 3:1889
rhodiola rosea for, 3:1930, 1931
slippery elm for, 4:2088
usnea for, 4:2298
Tubes, ear. *See* Ventilation tubes
Tubo-ovarian abscesses, 3:1721, 1725
Tuckahoe, 1:174
Tufts University, 3:1454; 4:2216
Tufts University Health and Nutrition Letter, 2:922
Tui na massage
earaches, 2:737
neck pain, 3:1586
safflower in, 4:1965
tendinitis, 4:2210
traditional Chinese medicine and, 1:499, 500; 4:2257
Tumbler's cure all. *See* Arnica
Tumor factors (immuno-augmentation therapy), 2:1158, 1160
Tumor markers, 1:387–388
Tumor necrosis factor-alpha receptor fusion proteins, 1:97
Tumor necrosis factor antagonists, 1:97; 2:1253
Tumors
edema from, 2:745
formation, 1:384–385
grading of, 3:1826
See also Cancer
TUNA (transurethral needle ablation), for prostate enlargement, 3:1832
Tunable dye lasers, for rosacea, 3:1946
Tuning fork tests, 4:2242
Tuning forks, in sound therapy, 4:2110
Turkey burrseed. *See* Burdock root
Turkey corn. *See* Corydalis
Turkey/Turkish rhubarb. *See* Rhubarb root
Turkish corn. *See* Cornsilk
Turmeric, 1:641–644; 4:**2278–2281,** *2279*
angina, 1:91
atherosclerosis, 1:166
blood clots, 1:292
bursitis, 1:364
chickenpox, 1:478
chronic fatigue syndrome, 1:533
colitis, 1:570
common cold, 1:591
corns and calluses, 1:610
cuts and scratches, 1:648
fungal infections, 2:877
gallstones, 2:880
heartburn, 2:1023
juvenile rheumatoid arthritis, 2:1253
pleurisy, 3:1768
rheumatoid arthritis, 3:1926
scabies, 4:1982
shingles, 4:2053
skin cancer, 4:2074
sore throat, 4:2106
sprains and strains, 4:2128
systemic lupus erythematosus, 4:2188
vomiting, 4:2358
Turmeric: A Brief Review of Medicinal Properties (Srimal), 4:2280
Turmeric paper, 1:641
Turmeric root. *See* Goldenseal
Turnera diffusa. See Damiana
Turner's sign, 3:1693
TURP (transurethral resection procedure), 3:1827, 1832
Tuskegee University, 2:1291
Tussilago farfara. See Coltsfoot
Twelve step programs, for substance abuse, 4:2162
Twinberry. *See* Squawvine
Two Cure Decoction, 4:2196
204 Wei Tong Pian, for peptic ulcers, 4:2286
Tykerb (lapatinib), for breast cancer, 1:326
Tylenol. *See* Acetaminophen
Tyler, Varro
Chinese skullcap, 4:2076
comfrey, 1:588
grape seed extract, 2:961
herbal medicine, 2:1052
Mexican yam, 3:1495
mistletoe, 3:1512
skullcap, 4:2077
suma, 4:2166
Tyler's Honest Herbal (Tyler), 3:1495, 1512; 4:2076, 2166
Tylophora asthmatica, 1:156
Tympanic membrane, 2:731
Tympanograms, for infections, 2:733
Type A/B/C personalities, 3:1505
Type I/II diabetes, 2:685–686
See also Diabetes mellitus
Typhoid
goldenseal for, 2:948
horehound for, 2:1102
lysimachia for, 3:1391
slippery elm for, 4:2088
Typhus, 2:895; 3:1337
Tyrosine, for hypothyroidism, 2:1150
Tysabri (natalizumab), for Crohn's disease, 1:633
Tzanck tests, for genital herpes, 2:911

U

Ubidecarenone. *See* Coenzyme Q10
Ubiquinone. *See* Coenzyme Q10
Ueshiba, Morihei, 3:1437
Ukrain (chelidonium), 1:467
UL. *See* Tolerable Upper Intake Level
Ulcer-like dyspepsia, 4:2142
See also Indigestion; Stomachaches
Ulcer penetration, 4:2284–2285
Ulcerative colitis
acidophilus for, 3:1305
glucosamine for, 2:936
as inflammatory bowel disease, 2:1183, 1184, 1185
Saccharomyces boulardii for, 4:1963
See also Colitis
Ulcers
boswellia for, 1:314
comfrey for, 1:587
Gerson therapy for, 2:919
grape seed extract for, 2:960
horsetail for, 2:1106, 1107
lacto-ovo vegetarianism for, 3:1302
marijuana for, 3:1432
marsh mallow for, 3:1435
meditation for, 3:1449
mesoglycan for, 3:1490
neural therapy for, 3:1594
panchakarma for, 3:1689
pau d'arco for, 3:1720
phytolacca for, 3:1748
psyllium for, 3:1850
red clover for, 3:1891
rhubarb for, 3:1934
St. John's wort for, 4:2131
suma for, 4:2165
therapeutic touch for, 4:2223
Tibetan medicine for, 4:2239
veganism for, 4:2319
vegetarianism for, 4:2326

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

yucca for, 4:2418
See also Mouth ulcers; Peptic ulcers
Ulcers, digestive, 4:**2283–2287**, *2284*
Ulmus species. *See* Slippery elm
Ultra-rapid cycling (bipolar disorder), 1:255
Ultrasound diathermy, 2:700, 1057
Ultrasound imaging
fibrocystic breast disease, 2:837
gallstones, 2:880
heart disease, 2:1017
hyperthyroidism, 2:1138
kidney stones, 2:1277
menstruation disorders, 3:1481
natural hormone replacement therapy and, 3:1574
ovarian cancer, 3:1669
prostate cancer, 3:1826
wounds, 4:2398
Ultraviolet light therapy
pityriasis rosea, 3:1760
psoriasis, 3:1837
skin diseases, 3:1344
Ultraviolet radiation
cataracts and, 1:418
damage from, 3:1873
free radicals and, 1:404
light therapy and, 3:1345–1346; 4:2007–2008
sunburn and, 4:2166–2167
vitamin E for, 4:2351
witch hazel and, 4:2389
Umm Al-Qura University, 2:1271
Uña de gato. *See* Cat's claw
Unani-tibbi, 2:1049; 4:**2287–2290**
Uncaria species. *See* Cat's claw
Uncertainty, Bach flower essences and, 1:198; 2:852
Uncontrolled diabetics, 2:686
UNDA compounds, 1:252
Underarm brace, for scoliosis, 4:2005
Undescended testicles, boswellia for, 1:314
Undifferentiated schizophrenia, 4:1992
UNICEF (United Nations Children's Fund), 2:1205
Unicursal design (labyrinths), 3:1295
Uniform Crime Reports for the United States, 3:1431
Uniformed Services University of the Health Sciences, 4:2007
Unipolar depression. *See* Depression
Unique manuka factor, 3:1427, 1429
United Cerebral Palsy Association, 1:443, 445
United Kingdom Food Standards Agency, 4:2319
United Nations, 3:1447
United Nations Children's Fund (UNICEF), 2:1205
United Plant Savers, 1:298; 3:1357
United States agencies. *See headings beginning with* U.S.
United States Dispensatory, 4:1980
United States National Formulary. *See* National Formulary
United States Pharmacopeia
arnica, 1:135
bloodroot, 1:297
dandelion, 2:658
echinacea, 2:738
enzyme activity standards, 1:539
garcinia, 2:890
pennyroyal, 3:1726
plantain, 3:1764
prince's pine, 3:1815
rosemary, 3:1950
sage, 4:1970
slippery elm, 4:2088
standardized extracts, 2:1048
supplement verification program, 3:1651
valerian, 4:2312
wintergreen, 4:2386
yarrow, 4:2401
See also USP labeling
Universal Principles (Breema), 1:334
University College London Hospitals, 2:1185
University Hospital Groningen, 1:529
University of Arizona, 1:110
University of Arkansas, 1:124
University of Auckland, 1:379
University of Bangor, 2:1136
University of Barcelona, 2:1259
University of Bridgeport, 3:1581
University of Buffalo, 1:181
University of California at Davis, 4:2050
University of California at Los Angeles, 2:1117, 1279
University of California at San Diego, 1:555; 2:683
University of California at San Francisco, 1:333; 3:1795, 1844
University of California at Santa Cruz, 1:462
University of Chile, 2:857
University of Colorado, 2:785, 961
University of Connecticut, 1:543
University of Dresden, 3:1428
University of Exeter, 2:987; 3:1806
University of Iowa, 1:224
University of Kentucky, 1:5
University of Leipzig, 1:75
University of London, 3:1325
University of Manchester, 1:395
University of Manitoba, 1:156
University of Maryland, 1:5, 6, 615; 2:1192
University of Miami, 1:434; 2:1172, 1288
University of Michigan, 2:1291; 3:1628, 1861
University of Nebraska, 2:665
University of North Carolina, 1:128; 2:1292; 4:1998
University of North Texas, 3:1662
University of Oregon, 1:333
University of Padova, 2:936
University of Paris, 1:110
University of Pennsylvania
black cohosh, 1:270; 3:1475
carpal tunnel syndrome, 1:408
chromium, 1:528
flaxseed, 2:847
immuno-augmentation therapy, 2:1161
meditation, 3:1452
scrupulosity, 3:1628
University of Plymouth, 2:987
University of Salerno, 2:1212
University of São Paulo, 4:2165
University of South Carolina, 3:1409
University of South Florida, 2:968
University of Southern California, 4:2343
University of Sydney, 1:369
University of Tennessee, 1:242; 2:698; 3:1640
University of Texas, 2:891, 1114
University of Texas Southwestern Medical Branch, 4:2234, 2235
University of Toronto, 1:396; 2:847
University of Virginia, 3:1409
University of Washington, 1:37; 2:953; 4:2007
University of Western Australia, 4:2197, 2199
University of Wisconsin, 3:1329; 4:2151
Unsaturated fats, 2:784
Unstable angina, 1:89
Upanishads (Vedic text), 4:2324, 2414
Upledger, John, 1:627
Upledger Institute, 1:628; 3:1660
Upper GI x-ray series
Crohn's disease, 1:632
heartburn, 2:1023
hiatal hernia, 2:1060
inflammatory bowel disease, 2:1184
Upper limit (nutrients). *See* Tolerable Upper Intake Level
Upper respiratory infections (URIs)
ear infections and, 2:731, 732
echinacea for, 2:739
ephedra for, 2:770, 771
marsh mallow for, 3:1435
sinus infections and, 4:2068
zinc for, 4:2419–2420
See also Common cold; Influenza

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Upper urinary tract infections. *See* Kidney infections
Upright bugle weed. *See* Bugle weed
Urea
breath tests with, 2:902
in escharotic treatment, 2:783
overview, 4:2295
Urethral caps and inserts, for urinary incontinence, 4:2293
Urethritis
cornsilk for, 1:611
defined, 1:283
psyllium for, 3:1850
See also Urinary tract infections
Urge incontinence, 4:2290, 2291*t*
See also Urinary incontinence
Uric acid
gout, 2:955–956, 958
kidney stones, 2:1276–1277, 1278
Uricosuric drugs, for gout, 2:958
Urinalysis. *See* Urine tests
Urinary incontinence, 4:**2290–2294,** 2291*t*
belladonna for, 1:222
biofeedback for, 1:242
ferrum phosphoricum for, 2:828
horsetail for, 2:1106
Kegel exercises for, 2:1263–1265; 4:2292, 2293
Urinary sphincter implants, 4:2293
Urinary system
applied kinesiology and, 1:126
astralagus for, 1:164
atractylodes for, 1:173
burdock for, 1:282
goldenseal for, 2:948
hibiscus for, 2:1063
lycopodium for, 3:1380
Urinary tract infections (UTIs), 1:283–286
acidophilus for, 3:1305
anemarrhena for, 1:80
buchu for, 1:348
Chinese skullcap for, 4:2076, 2077
cinnamon for, 1:543
cornsilk for, 1:611, 612
cranberry for, 1:284, 624–625
defined, 1:283
echinacea for, 2:739
epididymitis and, 2:774
gentiana for, 2:916
goldenrod for, 2:945, 946, 947
gravel root for, 2:797
gymnema for, 2:980
horsetail for, 2:1106
vs. interstitial cystitis, 2:1201
juniper for, 2:1249–1250
kava kava for, 2:1260, 1261
marsh mallow for, 3:1435
mercurius vivus for, 3:1484
nettle for, 3:1592, 1593
newborn jaundice and, 2:1234
plantain for, 3:1764
prince's pine for, 3:1814, 1815
probiotics for, 3:1306
psoralea seeds for, 3:1834
Saccharomyces boulardii for, 4:1963
saw palmetto for, 4:1980
scallion for, 4:1984
sheep sorrel for, 4:2042
shepherd's purse for, 4:2044
traditional African medicine for, 4:2253
usnea for, 4:2298
uva ursi for, 4:2305
Urination, frequent
Chinese foxglove root for, 1:497
Chinese yams for, 1:506, 507
cuscuta for, 1:645, 646
epimedium for, 2:781
prostate enlargement and, 3:1830; 4:1979
psoralea seeds for, 3:1834
Urination, painful
bladder infections and, 1:283, 285
cornsilk for, 2:686
prostate enlargement and, 4:1979
Urine, 4:2294–2295
Urine, blood in. *See* Hematuria
Urine tests
detoxification and, 2:678
diabetes, 2:687
environmental therapy, 2:766
hypercortisolemia, 2:1125
kidney infections, 2:1273
kidney stones, 2:1277
leukemia, 3:1333
magnesium levels, 3:1405
mercury poisoning, 3:1489
natural hormone replacement therapy and, 3:1574
parasitic infections, 3:1704
pregnancy, 3:1798
Tibetan medicine and, 4:2240
UTIs, 1:284
Urine therapy, 4:*2294,* **2294–2296**
URIs. *See* Upper respiratory infections
Uropathy. *See* Urine therapy
Urostomy, for bladder cancer, 1:281
Urtica species. *See* Nettle
Urticaria, defined, 2:1071
See also Hives
Urtication, 3:1591
U.S. Agency for Health Care Policy and Research, 2:1265; 4:1979
U.S. Agency for Healthcare Research and Quality (AHRQ), 2:1161; 4:1993
U.S. Army Research Institute of Infectious Diseases (USAMRIID), 2:1175
U.S. Bureau of Labor Statistics, 1:407
U.S. Court of Appeals for the Tenth Circuit, 2:770
U.S. Department of Agriculture (USDA), 3:1454
antioxidants, 1:111
Canadian Omega-3 pork, 2:847
carotenoids, 1:406
childhood nutrition, 1:489, 494
choline, 1:521
chromium, 1:529
cinnamon, 1:543
colostrum standards, 1:585
food guide history, 1:487
food guidelines, 4:2200–2201, 2203
gardenia, 2:893
hoodia, 2:1099
kudzu, 2:1291
lycopene, 3:1379
National Organic Standards Board, 3:1642
National Resources Conservation Center, 1:298
neem, 3:1589
ophiopogon, 3:1637
sodium, 4:2101
spearmint, 4:2118
teen nutrition, 4:2199
USDA organic seal, 3:1643
white peony root, 4:2374
See also Food Guide Pyramid
U.S. Department of Defense (DoD), 2:974, 975
U.S. Department of Health and Human Services (HHS)
ademetionine, 2:670
AIDS, 1:37
childhood nutrition, 1:494
food guidelines, 4:2203
high fiber diet, 2:1068
National Toxicology Program, 1:287; 4:2232
sodium, 4:2101
U.S. Environmental Protection Agency (EPA)
environmental therapy, 2:767
mercury emissions, 3:1487
sun exposure, 3:1873; 4:2167, 2168
U.S. Federal Trade Commission, 2:783
U.S. Food and Drug Administration (FDA)
Abreva, 1:564
adalimumab, 2:1253
AHAs, 1:63–64
alefacept, 3:1838
alosetron, 2:1221
Alzheimer's disease, 1:69
aprepitant, 3:1522
apricot seed, 1:129
arginine, 1:75
asthma treatment, 1:157, 158
atomoxetine, 1:177
Avastin, 1:581
beta carotene, 1:406
BHAs, 1:231
buchu, 1:347

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

budesonide, 1:633
butcher's broom, 1:366, 367
capsaicin, 1:427
cartilage supplements, 1:410, 411
cayenne, 4:2052
children's cold remedy ban, 2:1045
chlamydia screening, 1:513
cicada, 1:542
Cinacalcet, 2:1130
Citricidal, 2:966
Claritin, 2:1072
coal tar shampoos, 2:661
colchicum, 1:560
coltsfoot, 1:586
conductive keratoplasty, 2:1128
contraception effectiveness, 1:486
creatine, 3:1361
Cyma 1000, 1:650
DHEA regulation, 2:683
dietary supplement regulation, 2:938–939
DMSO approval, 3:1530
dong quai, 2:719
drotrecogin alfa, 1:295
dry mouth medications, 2:721
EDTA chelation therapy, 1:465
Elidel, 2:744
enzyme therapy, 2:769
ephedra and, 1:156; 2:703, 769–770, 771, 1011
escharotic treatment, 2:783
5-HTP, 2:844
folic acid fortification, 2:856
fructooligosaccharides, 2:874
gluten-free foods, 2:945
green tea, 2:969
group A streptococcus vaccine, 3:1924
heart attacks, 2:1012
herbal medicine regulation, 1:319, 320; 2:705, 1052
hoodia, 2:1099
hops, 2:1101
horehound, 2:1102
Hoxsey formula, 2:1113, 1114
HPV screening, 4:2299
HPV vaccine, 1:451
immuno-augmentation therapy, 2:1159
impotence treatments, 2:1165, 1166
insulin delivery systems, 2:690
kava kava, 2:1261, 1262
Koch, William and, 3:1679
kombucha, 2:1290
labeling standards, 1:374
LANAP approval, 2:978
lobelia, 3:1355
Lycria, 2:839
maitake, 3:1413
manuka honey, 3:1429
melatonin, 3:1459
mercury exposure, 2:786; 3:1486–1487
mullein, 3:1537
natalizumab, 1:633
Office of Women's Health, 1:63
omalizumab, 1:56; 2:999
Operation Cure, 2:783
Pap smears, 1:450
penicillamine, 3:1319
pennyroyal, 3:1727
placebo effect, 3:1762
potassium, 3:1788
probiotics, 1:570
Provenge, 3:1829
psoriasis, 3:1837
psyllium, 3:1850
radiation injuries, 3:1873
ranolazine, 1:91
recommended daily allowances, 3:1651
red yeast rice extract, 1:520; 3:1893, 1894
RESPeRATE, 2:1134
RotaTeq, 2:908
Saccharomyces boulardii, 4:1964
sacral nerve stimulation, 4:2293
safrole, 4:2390
saliva sample testing, 4:1972, 1974
salmeterol, 1:341
Sarafem, 3:1806
sassafras, 4:1977
silver, 1:573
slippery elm, 4:2089
smoking, 4:2090
soy products, 4:2115, 2116
stevia, 4:2139
sunscreens, 4:2169
tampons, 3:1481; 4:2252
teriparatide, 3:1478
thermography, 4:2227
thunder god vine, 4:2234, 2235
thyme, 4:2238
traditional Chinese medicine, 2:1045; 4:2258
valproate, 3:1501
vegetarianism, 4:2328
vitamin D, 1:580
vitamin E, 4:2351
weight loss aids, 3:1625, 1626
wild oat, 4:2384
witch hazel, 4:2391
wormwood, 4:2397
XanGo, 3:1425–1426
yohimbe, 4:2415, 2416
See also Center for Food Safety and Applied Nutrition
U.S. National Research Council, 1:406
U.S. Pharmacopeia. *See* United States Pharmacopeia
U.S. Public Health Service (USPHS), 2:1259; 3:1840
U.S. Supreme Court, 2:770, 934
USA Karate Federation, 3:1438
USA Today, 2:786
USAMRIID (U.S. Army Research Institute of Infectious Diseases), 2:1175
USDA. *See* U.S. Department of Agriculture
Usnea, 4:**2296–2298,** *2297*
cervical dysplasia, 1:451; 4:2298
fungal infections, 2:877
laryngitis, 3:1308
Usnic acid, 4:2297
USP labeling
calcium supplements, 2:716
kola, 1:374
milk thistle, 3:1504
USPHS (U.S. Public Health Service), 2:1259; 3:1840
Usui, Mikao, 3:1899, 1900, 1902
Uterine artery embolization, 4:2303
Uterine bleeding, 4:2301
See also Menstruation
Uterine cancer, 4:**2298–2300**
Uterine contractions, 1:276, 483
See also Dysmenorrhea
Uterine fibroids, 4:*2301,* **2301–2304**
sepia for, 4:2028
shepherd's purse for, 4:2044
yellow dock for, 4:2406
UTIs. *See* Urinary tract infections
Utkin, L., 3:1931
Uva ursi, 1:285, 348; 4:*2304,* **2304–2306**
Uvula, snoring and, 4:2097
Uvulopalatopharyngoplasty, 4:2081, 2098

V

VA (Veterans Administration), 2:974, 975; 3:1551
VA Medical Center (San Diego), 2:1117
Vaccines
AIDS, 1:39
allergens, 3:1929
autism and, 1:191; 3:1447, 1547
cancer, 3:1352, 1353, 1829
chickenpox, 1:479
colorectal cancer, 1:581
DPT, 1:191; 4:2216, 2380
ear infections, 2:735
group A streptococcus, 3:1924
hepatitis, 2:1040
homeopathy for, 2:1090
HPV, 1:386, 451
influenza, 2:1189
Law of Similars and, 2:1085
Lyme disease, 3:1386–1387
malaria, 2:1237; 3:1417
measles, 3:1447
meningitis, 3:1472
MMR, 1:191; 3:1447, 1547, 1955, 1957
mumps, 3:1545, 1547
nicotine addiction, 4:2094

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Vaccines *(continued)*
overview, 2:1177
pneumonia, 3:1773
rabies, 3:1870, 1871
rotaviruses, 2:908
rubella, 3:1955, 1957
shingles, 4:2054
Staphylococcus aureus, 4:2137
tuberculosis, 4:2277
UTIs, 1:285
whooping cough, 4:2380
Vaccinium macrocarpon. See Cranberry
Vaccinium myrtillus. See Bilberry
Vaginal birth after Caesarean (VBAC), 1:483
Vaginal cones, 2:1265
Vaginal itching, 2:1228
Vaginal yeast infections. *See* Vulvovaginal candidiasis
Vaginismus, 4:2031
Vaginitis, 4:**2307–2311**
cnidium seeds for, 1:551, 552
glucosamine for, 2:936
grapefruit seed extract for, 2:966
kava kava for, 2:1260, 1261
motherwort for, 3:1518
oak for, 3:1620
usnea for, 4:2298
witch hazel for, 4:2389
yellow dock for, 4:2406
Vaginosis. *See* Bacterial vaginosis
Vagotomy, for peptic ulcers, 4:2286
Vagus nerve stimulation, for epilepsy, 2:779
Valacyclovir, for shingles, 4:2053
Valerian, 4:*2311,* **2311–2313**
alcoholism, 1:44
binge eating disorder, 1:241
bipolar disorder, 1:257
fractures, 2:864
gastrointestinal gas, 2:899
headaches, 2:1004
holistic dentistry and, 2:1077
inflammatory bowel disease, 2:1184
insomnia, 2:1195–1196, 1197
irritable bowel syndrome, 2:1220
low back pain, 3:1365
menopause, 3:1475
menstruation disorders, 3:1482
migraine, 3:1500
obsessive-compulsive disorder, 3:1629
pain, 3:1685
premenstrual syndrome, 3:1805
sciatica, 4:2002
sleep disorders, 4:2085
substance abuse, 4:2161
tremors, 4:2263
Validity testing, 1:219
Valine, 1:74
Valio, Ltd., 3:1819
Valium. *See* Diazepam
Valnet, Jean, 1:138; 2:788
Valproate/valproic acid
bipolar disorder, 1:258
carnitine and, 1:403
epilepsy, 2:778
hiccups, 2:1065
migraine, 3:1501
phobias, 3:1744
Vamana. *See* Therapeutic vomiting
van der Kroon, Coen, 4:2296
Vanadium, 2:688; 4:**2313–2315**
Vancomycin
meningitis, 3:1472
staphylococcal infections, 4:2137
vs. tea tree oil, 4:2197
Vandal root. *See* Valerian
Vandana bhakti, 1:236
Vaporizers, for laryngitis, 3:1308, 1309
Vardenafil
impotence, 2:1165
prostate enlargement, 3:1832
Variant angina, 1:89–90
Varicella. *See* Chickenpox
Varicella vaccine, 1:479
Varicella-zoster immune globulin (VZIG), 1:478–479
Varicella-zoster virus, shingles and, 1:478; 4:2051
Varicose veins, 4:**2315–2318,** *2316*
bromelain for, 1:338
edema from, 2:745
ginkgo for, 2:922
gotu kola for, 2:952, 953
grape skin for, 2:964
horse chestnut for, 2:1105
horsetail for, 2:1107
juniper for, 2:1250
lachesis for, 3:1300
marsh mallow for, 3:1435
mesoglycan for, 3:1490
mullein for, 3:1536
oligomeric proanthocyanidins for, 2:963
pine bark extract for, 3:1756
pulsatilla for, 3:1854
St. John's wort for, 4:2132
sweet clover for, 4:2175
witch hazel for, 4:2388, 2389
yoga for, 2:993; 4:2409
Varivax, 1:479
Vascular dementia, 2:664
Vascular endothelial growth factor, 2:1057
Vascular-lymphatic endometriosis theory, 2:758
Vascular system. *See* Cardiovascular system
Vasculitis
rheumatoid arthritis, 3:1926
Sjögren's syndrome, 4:2071
systemic lupus erythematosus, 4:2188
Vasectomy, bilateral, 2:775
Vaso-occlusive crises, sickle cell anemia and, 4:2063, 2065
Vasodilators
arginine, 1:131
for hypertension, 2:1134
khella, 2:1271
kola nuts, 2:1287
for strokes, 4:2157
Vasquez, Alex, 2:722
Vata dosha
overview, 1:192, *192,* 193, 193*t*
panchakarma, 3:1689
VBAC (vaginal birth after Caesarean), 1:483
Vedas (ancient texts)
Ayurvedic medicine, 1:191–192, 452
bhakti yoga, 1:235
botanical medicine, 1:316
magnetic therapy, 3:1407
yoga, 4:2414
Vegan Society, 4:2318, 2319
Veganism, 4:**2318–2323**
for asthma, 1:156
Atkins diet and, 1:171
for endometriosis, 2:759
for prostate cancer, 2:1067
vitamin B12 and, 4:2321, 2336, 2337
Vegetable sulfur. *See* Lycopodium
Vegetables
in anti-inflammatory diet, 1:106
for cirrhosis, 1:547
for jaundice, 2:1235
in macrobiotic diet, 3:1397
in Mediterranean diet, 3:1455
Vegetarian Journal, 4:2319
Vegetarian Resource Group, 4:2321, 2328
Vegetarian Society of Great Britain, 3:1301; 4:2318, 2330
Vegetarian Times, 4:2324, 2415
Vegetarianism, 4:**2323–2330,** 2324*t*
adolescents and, 4:2202
for cancer, 1:390, 396
childhood nutrition and, 1:492–493
for cholesterol control, 1:520
copper and, 1:604
detoxification and, 2:678
for endometriosis, 2:759
food guidelines, 3:1614
for gallstones, 2:880
for juvenile rheumatoid arthritis, 2:1253
knee pain and, 2:1283
lacto-ovo, 3:1300–1304
Ornish diet and, 3:1645, 1646
ovarian cancer, 3:1670
for retinopathy, 3:1919

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

for rheumatoid arthritis, 3:1926
yoga and, 2:993
Vein damage, phlebitis and, 3:1739
Velocity wounds, 4:2398
See also Wounds
Velvet plant. *See* Mullein
Venereal Disease Research Laboratory tests, for syphilis, 4:2183
Venereal warts. *See* Genital warts
Venlafaxine, for hot flashes, 2:1111
Venom, bee. *See* Apis
Venom immunotherapy, 4:**2330–2332**
Venomous snakes. *See* Poisonous snakes
Venous insufficiency, 1:366–367; 4:2317
Venous thromboembolism, 1:292
Venous thrombosis. *See* Phlebitis
Ventilation, mechanical. *See* Mechanical ventilation
Ventilation systems, sick building syndrome and, 4:2059–2060
Ventilation tubes
ear infections, 2:734, 735
earaches, 2:737
Ménière's disease, 3:1467
Veratrum album
food poisoning, 2:861
vomiting, 4:2358
Veratrum grandiflorum, 3:1912–1913
Verbal dialogue, Hellerwork and, 2:1031
Verbascum thapsus. *See* Mullein
Verbena officinalis. *See* Vervain
Vermilion borders, 1:562
Vermouth, 4:2396
Verruca plantaris, 4:2361, 2364
Verruca vulgaris, 4:2361, *2362*
Verrucae. *See* Warts
Vertigo
defined, 2:711
ginkgo for, 2:922
homeopathy for, 2:1094
Ménière's disease and, 2:712–713; 3:1465, 1466, 1467
mistletoe for, 3:1511
niacin for, 3:1600
overview, 2:712
thuja for, 4:2232
valerian for, 4:2312
See also Dizziness
Vervain
binge eating disorder, 1:241
bipolar disorder, 1:257
fever, 4:1987
as flower remedy, 1:199; 2:850*t*, 852
holistic dentistry and, 2:1077
mononucleosis, 3:1515
peripheral neuropathy, 3:1734
postpartum depression, 3:1781
shingles, 4:2053
sleep disorders, 4:2085
substance abuse, 4:2161
Vesicles
chickenpox, 1:*476*, 477
impetigo, 2:1162
Vesicoureteral reflux, 1:283; 3:1507
Vestibular neurectomy, for Ménière's disease, 3:1467
Vestibular system
dizziness, 2:712–713
Ménière's disease, 3:1465
motion sickness, 3:1520
Veterans Administration (VA), 2:974, 975; 3:1551
Veterans' Affairs Medical Center, 2:1292
Veterinary Botanical Medicine Association, 4:2133
Veterinary medicine
acemannan, 1:60
brewer's yeast, 1:336
bromelain, 1:338
eucalyptus, 2:793
flaxseed, 2:847
flower remedies, 2:853; 3:1909
garlic, 2:896
St. John's wort, 4:2133
tangerine peel, 4:2196
tea tree oil, 4:2199
vegetarianism and, 4:2329–2330
yucca, 4:2418
Viagra (sildenafil citrate)
impotence, 2:1165
prostate enlargement, 3:1832
Vibration
Russian massage, 3:1959
Swedish massage, 4:2173
Vibrational therapy, 4:2110
Vibrio cholerae. *See* Cholera
Vibrio vulnificus poisoning, 2:859*t*
Viburnum opulus. *See* Cramp bark
Viburnum prunifolium. *See* Black haw
Vicks ointment, 2:1187; 4:2232
Vidanga, for worms, 4:2393
Vidarabine, for genital herpes, 2:912
Villegas-Ochoa, Monica A., 3:1810, 1811
Vinblastine, for Kaposi's sarcoma, 2:1259
Vinca species. *See* Periwinkle
Vincent's infection, 2:976
See also Periodontitis
Vine flower essence, 1:199; 2:850*t*, 852
Vine-that-ate-the-South. *See* Kudzu
Vinegar
from apple cider, 1:122–124
bites and stings, 1:261
lice infestations, 3:1338, 1339
swimmer's ear, 4:2177, 2178
trichomoniasis, 4:2268
vaginitis, 4:2309
vulvovaginal candidiasis, 4:2404
Viniyoga, 2:993
Vinpocetine, in periwinkle, 3:1736–1737
Vinyl chloride, Raynaud's syndrome and, 3:1886
Viola tricolor. *See* Pansy; Wild pansy
Violence
childhood nutrition, 1:487, 489
schizophrenia, 4:1995
Violet (color), 1:577, 578
Violet (flower), 2:1229; 3:1475
Vipassana, 3:1507
Vipassana Meditation Center, 3:1509
Viral conjunctivitis. *See* Conjunctivitis
Viral croup, 1:635
See also Croup
Viral food poisoning, 2:860*t*
See also Food poisoning
Viral gastroenteritis, 2:906
See also Gastroenteritis
Viral hepatitis. *See* Hepatitis
Viral meningitis, 3:1471, 1472
Virechana. *See* Laxatives
Virginian water horehound. *See* Bugle weed
Virilization, polycystic ovarian syndrome and, 3:1777, 1778
Virology Journal, 4:1976
Virtual colonoscopy, 1:580
Virus diseases
with AIDS, 1:34–35
barberry for, 1:202
calendula for, 1:382
colostrum for, 1:583
ganoderma for, 2:887, 888
garlic for, 2:895, 896
grapefruit seed extract for, 2:965
horse chestnut for, 2:1105
hypothyroidism and, 2:1148
lemon balm for, 3:1327
lomatium for, 3:1357
lysine for, 3:1392
manuka honey for, 3:1428
multiple sclerosis and, 3:1541–1542
neem for, 3:1588
oregano for, 3:1639
osha for, 3:1652
pau d'arco for, 3:1720
peppermint for, 3:1731
phytolacca for, 3:1748
pneumonia from, 3:1770
quercetin for, 3:1866
royal jelly for, 3:1954
shiitake mushroom for, 4:2049
sick building syndrome and, 4:2058
silver for, 1:573
Sjögren's syndrome and, 4:2071
sore throat and, 4:2104–2105
St. John's wort for, 4:2131

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Virus diseases *(continued)*
thuja for, 4:2231
urine therapy for, 4:2295
See also specific diseases
Visceral manipulation, for hiatal hernias, 2:1062
Viscum album. See Mistletoe
Vishnudevananda (Swami), 1:192
Vision
BHAs and, 1:232
dyslexia and, 2:726, 727
ginkgo for, 2:923
lutein and, 3:1374
overview, 1:22, 416
systemic lupus erythematosus and, 4:2188
Vision disorders. *See* Eye diseases
Vision testing. *See* Eye examinations
Vision therapy. *See* Orthoptics
Visual seizures, 2:776
Visualization
childbirth, 1:485
chronic fatigue syndrome, 1:533
dysmenorrhea, 2:730
endometriosis, 2:760
headaches, 2:1004
heartburn, 2:1024
hot flashes, 2:1112
infertility, 2:1181
migraine, 3:1500
mononucleosis, 3:1515
ovarian cancer, 3:1670
ovarian cysts, 3:1676
prostate cancer, 3:1827
Raynaud's syndrome, 3:1887
sleep disorders, 4:2086
temporomandibular joint syndrome, 4:2207
uterine cancer, 4:2300
warts, 4:2363
weight loss, 3:1624
Visuddha, 1:453
Vital formula, for menopause, 3:1476
Vitamin A, 4:**2332–2335**, 2333*t*
adolescents, 4:2203
AIDS, 1:36
as antioxidant, 1:109*t*, 110, 111, 112
asthma, 1:156
bedsores, 1:211
beta carotene and, 1:227, 404
boils, 1:303
in bonemeal, 1:305
cataracts, 1:416
cervical dysplasia, 1:451; 3:1580
chickenpox, 1:478
childhood nutrition and, 1:493
in colostrum, 1:583
cough, 1:618
cuts and scratches, 1:648
dermatitis, 2:674
emphysema, 2:756
enzyme therapy and, 2:768
fever, 2:832
fibrocystic breast disease, 2:837
food sources, 1:109*t*
fungal infections, 2:877
gastritis, 2:902
genital warts, 2:914
gum diseases, 2:977
hay fever, 1:55; 2:998
hearing loss, 2:1009
heavy metal poisoning, 2:1027
hyperopia, 2:1127
hypothyroidism, 2:1150
infections, 2:1176
jet lag, 2:1238
juvenile rheumatoid arthritis, 2:1253
kidney infections, 2:1274
laryngitis, 3:1309
leukemia, 3:1333
measles, 3:1447
meningitis, 3:1472
menstruation disorders, 3:1482
mononucleosis, 3:1514
myopia, 3:1555
night blindness, 3:1603, 1604
osteoarthritis, 3:1656
ovarian cancer, 3:1670
ovarian cysts, 3:1676
Parkinson's disease, 3:1708
peptic ulcers, 4:2285
pneumonia, 3:1772
radiation injuries, 3:1876
rashes, 3:1882
retinopathy, 3:1919
rheumatoid arthritis, 3:1926
rhinitis, 3:1929
seniors, 4:2017
sinus infections, 4:2069
smoking cessation, 4:2093
sore throat, 4:2106
sties, 4:2141
systemic lupus erythematosus, 4:2188
toxicity, 1:111, 493
trichomoniasis, 4:2268
tuberculosis, 4:2276
UTIs, 1:285
vaginitis, 4:2309
whooping cough, 4:2380
Vitamin A deficiency
night blindness, 3:1603, 1604
overview, 1:404; 4:2333–2334
vision disorders, 1:227
Vitamin B complex, 4:**2338–2341**
aging, 1:30
asthma, 1:156
autism, 1:190
bedsores, 1:211
in brewer's yeast, 1:335–336
canker sores, 1:399
cervical dysplasia, 1:451
chills, 1:496
cold sores, 1:563
dementia, 2:665
dizziness, 2:713
dysmenorrhea, 2:729
endometriosis, 2:759
fatigue, 2:816
fibrocystic breast disease, 2:837
fungal infections, 2:877
hangovers, 2:988
hay fever, 2:998
hearing loss, 2:1009
heart attacks, 2:1012
heart disease, 2:1018
as insect repellent, 2:1230
jaundice, 2:1236
juvenile rheumatoid arthritis, 2:1253
knee pain, 2:1283
lead poisoning, 3:1318
leukemia, 3:1333
lung cancer, 3:1371
Lyme disease, 3:1386
meningitis, 3:1472
menstruation disorders, 3:1482
mononucleosis, 3:1514
neuralgia, 3:1596
panic disorders, 3:1698
Parkinson's disease, 3:1708
peptic ulcers, 4:2285
phlebitis, 3:1740
radiation injuries, 3:1876
rashes, 3:1882
restless leg syndrome, 3:1912
retinopathy, 3:1919
rosacea, 3:1946
seborrheic dermatitis, 2:674
shingles, 4:2053
systemic lupus erythematosus, 4:2188
tinnitus, 4:2242
tuberculosis, 4:2276
vaginitis, 4:2309
wheezing, 4:2372
Vitamin B deficiency, 1:21; 4:2338–2340
Vitamin B1. *See* Thiamine
Vitamin B2. *See* Riboflavin
Vitamin B3. *See* Niacin
Vitamin B5. *See* Pantothenic acid
Vitamin B6. *See* Pyridoxine
Vitamin B7. *See* Biotin
Vitamin B12, 4:**2335–2337**, 2336*t*
aging, 1:30
Alzheimer's disease, 1:67
cerebral vascular insufficiency, 1:448
cervical dysplasia, 1:451
chronic fatigue syndrome, 1:532
cirrhosis, 1:547
in colostrum, 1:583
dementia, 2:665
depression, 4:2336, 2338
folic acid and, 4:2338
gastritis, 2:902
headaches, 2:1004
hives, 2:1072
infertility, 2:1180

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

ischemia, 2:1225
lacto-ovo vegetarianism and, 3:1303
male infertility, 4:2336, 2338
memory loss and, 3:1461
Ménière's disease, 3:1467
multiple sclerosis, 3:1543
muscle cramps, 3:1550
peripheral neuropathy, 3:1734
phlebitis, 3:1740
restless leg syndrome, 3:1912
seniors, 4:2017
sleep disorders, 4:2085
smoking cessation, 4:2090*t*, 2093
in spirulina, 4:2123
strokes, 4:2157
veganism and, 4:2321, 2336, 2337
vegetarianism and, 4:2327

Vitamin B12 deficiency, 4:2336–2337

Vitamin B12 deficiency anemia, 1:83, 85, 86; 4:2337

Vitamin C, 4:**2341–2346,** 2341*t*, 2342*t*
aging, 1:30
AIDS, 1:36
as antioxidant, 1:109*t*, 110, 111, 112
asthma, 1:156
autism, 1:190
bedsores, 1:211
bioflavonoids and, 1:245, 246
blood clots, 1:292
boils, 1:303
cancer, 1:395
cataracts, 1:416
cerebral palsy, 1:443
cervical dysplasia, 1:451
chickenpox, 1:478
chills, 1:496
chondroitin with, 1:524
cold sores, 1:563
common cold, 1:591, 593; 2:1046; 3:1650
conjunctivitis, 1:594
constipation, 1:600
cough, 1:618
in cranberry, 1:624, 625
dementia, 2:665
depression, 3:1651
diarrhea, 2:697
dry mouth, 2:721
earaches, 2:737
eczema, 2:743
emphysema, 2:756
endometriosis, 2:759
fever, 2:832
food sources, 1:109*t*
fungal infections, 2:877
gastritis, 2:902
genital warts, 2:914
glaucoma, 2:933
glutathione and, 2:940
gonorrhea, 2:950
gum diseases, 2:979
halitosis, 2:985
hangovers, 2:988
hay fever, 1:55; 2:998
hearing loss, 2:1009
heart attacks, 2:1012
heart disease, 2:1018
heavy metal poisoning, 2:1027
hemorrhoids, 2:1034
hepatitis, 2:1039
hives, 2:1072
hyperopia, 2:1127
infections, 2:1176
infertility, 2:1180
inflammatory bowel disease, 2:1185
influenza, 2:1188, 1190
ischemia, 2:1225
jaundice, 2:1236
jet lag, 2:1238
juvenile rheumatoid arthritis, 2:1253
knee pain, 2:1283
laryngitis, 3:1309
lead poisoning, 3:1318
leukemia, 3:1333
lung cancer, 3:1371
Lyme disease, 3:1386
measles, 3:1447
Ménière's disease, 3:1467
meningitis, 3:1472
menopause, 3:1581
mononucleosis, 3:1514
MSM and, 3:1532
multiple sclerosis, 3:1543
nosebleeds, 3:1607
osteoarthritis, 3:1656
ovarian cancer, 3:1670
ovarian cysts, 3:1676
pain, 3:1685
Parkinson's disease, 3:1708
pelvic inflammatory disease, 3:1724
peptic ulcers, 4:2285
phlebitis, 3:1740
pleurisy, 3:1768
pneumonia, 3:1772
radiation injuries, 3:1876
rashes, 3:1882
retinopathy, 3:1919
rheumatoid arthritis, 3:1926
rhinitis, 3:1929
in rose hips, 3:1948
schizophrenia, 4:1998
seniors, 4:2017
shingles, 4:2053
sinus infections, 4:2069
skin cancer, 4:2074
smoking cessation, 4:2090*t*, 2093
sneezing, 4:2096
sore throat, 4:1987, 2106
sprains and strains, 4:2128
sties, 4:2141
strep throat, 4:2149
strokes, 4:2157
systemic lupus erythematosus, 4:2188
in thuja, 4:2231
tinnitus, 4:2242
tonsillitis, 4:2245
trichomoniasis, 4:2268
in triphala, 4:2271, 2272
tuberculosis, 4:2276
uterine cancer, 4:2299
uterine fibroids, 4:2302
UTIs, 1:285
vaginitis, 4:2309
warts, 4:2363
wheezing, 4:2372
whooping cough, 4:2380

Vitamin C and the Common Cold (Pauling), 3:1650

Vitamin C deficiency, 4:2341–2342

Vitamin C deficiency anemia, 1:83

Vitamin D, 4:**2346–2349,** 2347*t*
adolescents, 4:2203
in bonemeal, 1:305
childhood nutrition and, 1:490, 493
colorectal cancer prevention, 1:580
fatigue, 2:816
fractures, 2:865
lacto-ovo vegetarianism and, 3:1303
leukemia, 3:1333
lung cancer, 3:1371
menopause, 3:1476
osteoporosis, 3:1663*t*, 1666
phosphorus and, 3:1745, 1747
potassium and, 3:1789
recommended amounts, 3:1663*t*
sleep disorders, 4:2085
sun exposure and, 4:2168
toxicity, 1:493
vaginitis, 4:2309
veganism and, 4:2321
vegetarianism and, 3:1303; 4:2327

Vitamin D deficiency, 4:2348

Vitamin E, 4:**2349–2353,** 2350*t*
adolescents, 4:2203
aging, 1:30
Alzheimer's disease, 1:67
as antioxidant, 1:109*t*, 110, 111, 112
asthma, 1:156
bedsores, 1:211
beta carotene and, 1:406
blood clots, 1:292
breast-feeding problems, 1:329
cataracts, 1:416, 418
cervical dysplasia, 1:451; 3:1580
childhood nutrition and, 1:493
cold sores, 1:563
in colostrum, 1:583
cough, 1:618
cuts and scratches, 1:648
dementia, 2:665
dermatitis, 2:674
diarrhea, 2:697
dysmenorrhea, 2:729
eczema, 2:743

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Vitamin E *(continued)*
emphysema, 2:756
endometriosis, 2:759
fibrocystic breast disease, 2:837
food sources, 1:109*t*
fungal infections, 2:877
genital herpes, 2:911, 912
gout, 2:957
gum diseases, 2:977, 979
hay fever, 1:55; 2:998
heart attacks, 2:1012
heart disease, 2:1018
heavy metal poisoning, 2:1027
hot flashes, 2:1109
hypoglycemia, 2:1146
hypothyroidism, 2:1150
infertility, 2:1180
inflammatory bowel disease, 2:1185
influenza, 2:1188
ischemia, 2:1225
itching, 2:1229
jet lag, 2:1238
juvenile rheumatoid arthritis, 2:1253
kidney infections, 2:1274
leukemia, 3:1333
lung cancer, 3:1371
memory loss, 3:1463
menopause and, 3:1476
menstruation disorders, 3:1482
multiple sclerosis, 3:1543
muscle cramps, 3:1550
nosebleeds, 3:1607
osteoarthritis, 3:1656
ovarian cancer, 3:1670
ovarian cysts, 3:1676
Parkinson's disease, 3:1708
peptic ulcers, 4:2285
phlebitis, 3:1740
premenstrual syndrome, 3:1805
rashes, 3:1882
Raynaud's syndrome, 3:1887
restless leg syndrome, 3:1911
retinopathy, 3:1919
rheumatoid arthritis, 3:1926
rosacea, 3:1946
seniors, 4:2017
sinus infections, 4:2069
skin cancer, 4:2074
strokes, 4:2157
systemic lupus erythematosus, 4:2188
tetanus immunity and, 4:2216
tinnitus, 4:2242
trichomoniasis, 4:2268
tuberculosis, 4:2276
uterine fibroids, 4:2302
UTIs, 1:285
vaginitis, 4:2309
in wheat germ, 4:2368
wounds, 4:2399
Vitamin E deficiency, 4:2349
Vitamin H. *See* Biotin
Vitamin K, 4:**2353–2356,** 2353*t*
adolescents, 4:2203
barley and, 1:205
bruises, 1:342, 343
childhood nutrition and, 1:493
in cornsilk, 1:611
leukemia, 3:1333
lung cancer, 3:1371
menopause, 3:1476
Vitamin K deficiency, 4:2354, 2355
Vitamin Q10. *See* Coenzyme Q10
Vitamins, 3:1613, 1615
See also specific vitamins
Vitex agnus castus. *See* Chasteberry tree
Vitiligo
betaine hydrochloride for, 1:234
psoralea seeds for, 3:1834
vitamin B12 for, 4:2336
vitamin D for, 4:2347
Vitis vinifera. *See* Grape seed extract
Vivekananda (swami), 2:993; 4:2409
Vocal tics, Tourette syndrome and, 4:2247, 2248, 2249
Vodder, Emil, 3:1388
Voiding cystourethrograms, 1:284
Volatile oils. *See* Essential oils
Volatile organic compounds (VOCs), 1:468; 4:2058
Voll, Reinhold, 2:750
Vomiting, 4:2356–2360, **2356–2360**
cinnamon for, 1:543
codonopsis root for, 1:554
coptis for, 1:606
cyperus for, 1:651
evodia fruit for, 2:801
ferrum phosphoricum for, 2:828
gastroenteritis and, 2:906
gentiana for, 2:916
ginger for, 2:921
grains-of-paradise for, 2:960
horehound for, 2:1102
hypnotherapy for, 2:1142
ipecac and, 2:1206, 1207, 1208
kali bichromium for, 2:1255
lachesis for, 3:1300
lemongrass for, 3:1329
lobelia and, 3:1354, 1355
lycium fruit for, 3:1376
manuka honey for, 3:1428
marijuana for, 3:1432
from morning sickness, 3:1516–1517
mugwort for, 3:1533
nutmeg for, 3:1610
osha for, 3:1653
peppermint for, 2:704; 3:1728
pinellia for, 3:1757
shiatsu for, 4:2046, 2047
tangerine peel for, 4:2195
therapeutic, 2:1027; 3:1689, 1690
white willow for, 4:2376
Vomiting nut. *See Nux vomica*
von Peczely, Ignatz, 2:1212
Von Zumbusch pustular psoriasis, 3:1836
Vulnerary action. *See* Wounds
Vulvitis/vulvovaginitis. *See* Vaginitis
Vulvovaginal candidiasis
acidophilus for, 1:3–4; 3:1305
defined, 4:2307–2308, 2403, 2404
diagnosis, 4:2309
dong quai for, 2:718
garlic for, 2:897
treatment, 4:2310, 2405
zinc for, 4:2420
VZIG (varicella-zoster immune globulin), 1:478–479

W

W. K. Kellogg Company, 4:2325
Wai qi liao fa, 1:500
Wake-promoting drugs, for narcolepsy, 3:1564
Walk Seven Steps and Die. *See* Thunder god vine
Walker, Morton, 1:253
Walking pneumonia, 3:1770
Wall wort. *See* Comfrey
Walnut
as flower remedy, 1:198; 2:850*t*, 852
melatonin in, 3:1460
for pregnancy, 3:1800
for rhinitis, 3:1929
Walters, Dale, 1:243
Walther, David S., 1:125–126
Wandering Jenny/Sally. *See* Lysimachia
Ware, James, 1:23
Warfarin
bruises from, 1:342
vitamin K and, 4:2354
Warm antibody hemolytic anemia, 1:84, 86
Warm compresses. *See* Hot compresses
Warts, 4:**2361–2365,** *2362*
BHAs for, 1:232
chelidonium for, 1:467
chickweed for, 1:480
coix for, 1:557
dandelion for, 2:659
grapefruit seed extract for, 2:966
juniper for, 2:1249
mugwort for, 3:1533
red cedar for, 3:1889
ruta for, 3:1961
thuja for, 4:2232
white willow for, 4:2376
wild oat for, 4:2385
See also Genital warts
Wartweed. *See* Chelidonium

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Wasabi, 4:*2365*, **2365–2367**
Washington, George, 4:2087
Washington University, 3:1836
Wasserman, Michael R., 2:1116
Wat Po temple, 4:2218, 2219
Watchful waiting
  gallstones, 2:880
  prostate cancer, 3:1827
  scoliosis, 4:2005
Water bugle. *See* Bugle weed
Water content, in food, 2:692
Water elder. *See* Cramp bark
Water hemp, 2:796, 797
The Water of Life: A Treatise on Urine Therapy (Armstrong), 4:2296
Water pennywort. *See* Gotu kola
Water plantain. *See* Alisma
Water recommendations. *See* Fluid recommendations
Water retention. *See* Edema
Water supply, for colonic irrigation, 1:576
  See also Drinking water
Water therapy. *See* Hydrotherapy
Water violet flower essence, 1:198; 2:850*t*, 852
Watson, Donald, 4:2318
Watsu. *See* Shiatsu
Watts, Alan, 3:1523
Wax, from bayberry, 1:208–209
Wax cluster. *See* Wintergreen
Wax myrtle. *See* Bayberry
Waxberry. *See* Bayberry
Way bread. *See* Plantain
The Way of Herbs (Tierra), 4:2165
Waythorn. *See* Buckthorn
Weaver's bottom. *See* Bursitis
Web sites. *See* Internet
Weber tests, for tinnitus, 4:2242
WebMD Health, 4:2423
Wedge resection, for lung cancer, 3:1372
Wegman, Ita, 1:102
Weight gain
  infants, 1:328
  in pregnancy, 3:1796*t*, 1797
Weight loss
  anorexia nervosa and, 1:100
  apple cider vinegar for, 1:122–123
  with Atkins diet, 1:170
  colostrum for, 1:584
  DHEA for, 2:683
  from diarrhea, 2:696
  ephedra for, 2:703, 770, 771, 772; 3:1624
  eucommia bark for, 2:796
  fasting and, 2:813
  5-HTP for, 2:844; 3:1624
  garcinia for, 2:890–891
  gymnema for, 2:980
  high sensitivity C-reactive protein test and, 2:1069
  hypnotherapy for, 2:1141
  insulin resistance and, 2:1199
  medium-chain triglycerides and, 3:1456, 1457
  for obesity, 3:1623–1625
  for polycystic ovarian syndrome, 3:1778
  with Pritikin diet, 3:1816
  with Shangri-la diet, 4:2039
  snoring, 4:2098
  with South Beach diet, 4:2112, 2113, 2114
  spirulina for, 4:2123
  uva ursi for, 4:2305
  veganism for, 4:2319, 2320, 2322–2323
  yohimbe for, 4:2415
Weight loss diets, 2:701, 703
  See also specific diets
Weight training
  benefits of, 2:805
  boron and, 1:312, 313
  glutamine for, 2:938
  green tea for, 2:968
  medium-chain triglycerides for, 3:1457
  vanadium for, 4:2313, 2314
Weil, Andrew, 1:494; 3:1509; 4:2017, 2296, 2388
Weiss, Brian, 3:1718, *1718*
Well Now (newsletter), 1:333
Wellbutrin (bupropion), 2:671; 4:2094
Wellness Community, 3:1508
Wells Prediction Rule, 1:292
Welsh onion. *See* Scallion
Wender Utah Rating Scale, 1:176
Werbach, Melvyn R., 2:785
Wernicke-Korsakoff syndrome
  alcohol and, 1:42
  thiamine deficiency and, 4:2229, 2339
West Indian arrowroot. *See* Arrowroot
West Palm Beach Veterans Affairs Medical Center, 2:953
West Virginia University, 1:270
Western angelica. *See* Angelica
Western blot tests
  AIDS, 1:35
  syphilis, 4:2183
Western dietary pattern, inflammation and, 1:107
Western herbalism. *See* Herbal medicine
Western mainstream medicine. *See* Allopathic medicine
Western Pacific Lou Gehrig's disease, 3:1360
  See also Lou Gehrig's disease
Western red cedar. *See* Red cedar
Western skullcap. *See* Skullcap
Western-style facial massage, 2:809–810, 811
Western wasabi. *See* Wasabi
Wet gangrene, 2:885
Wet macular degeneration, 3:1400
  See also Macular degeneration
Wetterhahn, Karen, 3:1488
Wheat germ, 1:620; 3:1596; 4:**2367–2368**
Wheat grass therapy, 4:**2368–2370**, *2369*
  biological cancer treatment, 1:396
  peptic ulcers, 4:2286
  systemic lupus erythematosus, 4:2188
  Wigmore diet and, 4:2382
Wheatgrass Nature's Finest Medicine: The Complete Guide to Using Grasses to Revitalize Your Health (Meyerowitz), 1:396
Wheelchair users
  bedsores, 1:211
  multiple sclerosis, 3:1543
Wheezing, 4:**2371–2373**
  from asthma, 1:154–155; 4:2371
  Chinese yams for, 1:506
  coltsfoot for, 1:586
  ephedra for, 2:771
  fritillaria for, 2:870
  gelsemium for, 2:909
  pinellia for, 3:1757
Whiplash, trigger point therapy for, 4:2270
Whirlpool baths, 2:1120–1121
  See also Hydrotherapy
White (color), emotional properties, 1:184
White arsenic. *See* Arsenicum album
White atractylodes. *See* Atractylodes
White bay. *See* Magnolia
White bird's eye. *See* Chickweed
White blood cells
  alcohol effect on, 1:42
  colostrum and, 1:583
  ipriflavone and, 2:1210, 1211
  response to infection and, 2:1174, 1175
White bryony. *See* Bryonia
White cedar. *See* Thuja
White chestnut flower essence, 1:198; 2:850*t*, 852; 3:1629; 4:2085
White coat hypertension, 2:1133
White hellebore, 3:1912–1913
White horehound. *See* Horehound
White House Commission on Alternative Medicine, 2:1052
White man's foot. *See* Plantain
White oak. *See* Oak
White oxide of metallic arsenic. *See* Arsenicum album

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

White peony root, 4:*2373*, **2373–2375**
White phosphorus, 3:1745
See also Phosphorus
White shu. *See* Atractylodes
White snake-root. *See* Eupatorium
White thoroughwort. *See* Eupatorium
White willow, 4:*2375*, **2375–2377**
ankylosing spondylitis, 1:97
juvenile rheumatoid arthritis, 2:1253
knee pain, 2:1283
pain, 3:1685
sciatica, 4:2002
Whiteheads, 1:6
Whitehouse, Mary Starks, 2:656; 3:1524–1525
Whitethorn. *See* Hawthorn
Whitfield's tincture, 1:169
Whitsun bosses/rose. *See* Cramp bark
WHO. *See* World Health Organization
Whole grains
anti-inflammatory diet, 1:106
macrobiotic diet, 3:1397
phosphorus and, 3:1746
Wholehealthmd.com, 3:1811, 1813
Whooping cough, 4:**2377–2381**, *2378*
eucalyptus for, 2:793, 794
horehound for, 2:1102
ignatia for, 2:1157
khella for, 2:1271
kola nuts for, 2:1287
lysimachia for, 3:1391
marijuana for, 3:1432
mistletoe for, 3:1511
ophiopogon for, 3:1637
ox-eye daisy for, 1:536
passionflower for, 3:1715
red clover for, 3:1891
thyme for, 4:2237
Whorehouse tea. *See* Ephedra
Whortleberry. *See* Uva ursi
Why People Don't Heal and How They Can (Myss), 2:763
Wigmore, Ann, 1:396; 4:2369, 2370, 2381, 2382
Wigmore diet, 1:396; 4:**2381–2383**
Wild angelica. *See* Angelica
Wild anise. *See* Fennel
Wild artichoke. *See* Milk thistle
Wild briar. *See* Rose hips
Wild carrot
kidney stones, 2:1278
night blindness, 3:1603
See also Lomatium
Wild celery. *See* Angelica
Wild chamomile. *See* Feverfew
Wild cherry, 1:**474–476**, *475*
laryngitis, 3:1308
tonsillitis, 4:2245
whooping cough, 4:*2378*, 2379
Wild chicory. *See* Chicory
Wild clover. *See* Red clover
Wild endive. *See* Dandelion
Wild hops. *See* Bryonia
Wild horehound. *See* Eupatorium
Wild hyssop. *See* Hyssop
Wild indigo
in herbal cold remedies, 2:1046
for mononucleosis, 3:1515
for sinus infections, 4:2069
Wild laburnum. *See* Sweet clover
Wild lettuce, for knee pain, 2:1283
Wild licorice. *See* Licorice
Wild oat, 4:**2383–2386**, *2384*
angina, 1:91
anxiety, 1:116
binge eating disorder, 1:241
bipolar disorder, 1:257
as flower remedy, 1:198; 2:850*t*, 852; 4:2385
fractures, 2:864
in gluten-free diet, 2:943–944
heart attacks, 2:1012
heart disease, 2:1018
hives, 2:1072
hypoglycemia, 2:1146
irritable bowel syndrome, 2:1220
itching, 2:1229
menopause, 3:1475
osteoporosis, 3:1665
panic disorders, 3:1698
peripheral neuropathy, 3:1734
phobias, 3:1743
postpartum depression, 3:1781
pregnancy, 3:1799
sleep disorders, 4:2085
smoking cessation, 4:2090*t*, 2093
stomachaches, 4:2143
See also Oatmeal baths
Wild pansy, for cradle cap, 1:620
Wild rose flower essence, 1:198; 2:850*t*, 852
Wild rosemary. *See* Ledum
Wild thyme. *See* Thyme
Wild tobacco. *See* Lobelia
Wild yam
amenorrhea, 1:72
anxiety, 1:116
binge eating disorder, 1:241
hot flashes, 2:1109, 1110
inflammatory bowel disease, 2:1184
irritable bowel syndrome, 2:1220
menopause, 3:1475
menstruation disorders, 3:1482
natural hormone replacement therapy and, 3:1571, 1574
panic disorders, 3:1698
pregnancy, 3:1799
premenstrual syndrome, 3:1805
stress, 4:2152
systemic lupus erythematosus, 4:2188
Wilderness Way (magazine), 3:1812
Willett, Walter, 3:1303, 1454
Williams, Howard, 3:1301
Willow flower essence, 1:198; 2:850*t*, 852
Willow herb/wort. *See* Lysimachia
Wilson's disease, copper and, 1:604, 606
Windburn
prickly pear cactus for, 3:1811
Rescue Remedy for, 3:1909
witch hazel for, 4:2388
Windflower. *See* Pulsatilla
Windows of perception, flower remedies and, 2:849, 851
Wine
health benefits, 2:963, 964
in Mediterranean diet, 3:1455
oak barrels for, 3:1620
resveratrol in, 3:1913
Winfrey, Oprah, 2:1046
Winiwarter, Alexander von, 3:1388
Winn, John S., 3:1488
Winter aconite, 1:*10*
Winter cherry. *See* Ashwaganda
Winter clover. *See* Squawvine
Winter weed. *See* Chickweed
Wintergreen, 4:2386–2388, **2386–2388**
epididymitis, 2:774
halitosis, 2:985
hangovers, 2:988
knee pain, 2:1282
rheumatic fever, 3:1922
tennis elbow, 4:2213
UTIs, 1:285
See also Prince's pine
Witch hazel, 4:*2388*, **2388–2391**
blood clots, 1:292
boils, 1:303
bruises, 1:342
cradle cap, 1:620
cuts and scratches, 1:648
gum diseases, 2:979
hemorrhoids, 2:1033
measles, 3:1446
nosebleeds, 3:1607
rashes, 3:1882
rubella, 3:1956
vaginitis, 4:2309
Witch meal. *See* Lycopodium
Witch's briar. *See* Rose hips
Witch's candle. *See* Mullein
Witch's pouches. *See* Shepherd's purse
Withania somnifera. *See* Ashwaganda
Withdrawal
alcohol, 1:44–45
caffeine, 1:374; 2:818
skullcap for, 4:2075
smoking, 4:2092, 2093
substance abuse and, 4:2161, 2162
sugar, 1:491

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Withering, William, 2:707
Wolff, Albert, 3:1679
Wolf's bane. *See* Aconite; Arnica
Wolf's claw. *See* Lycopodium
Wolpe, Joseph, 1:217–218; 3:1845
Women
  AIDS, 1:33, 37
  bulimia nervosa, 1:352, 353
  cellulite, 1:437
  chlamydia, 1:512, 513, 514
  genital herpes, 2:911
  insomnia, 2:1193–1194
  interstitial cystitis, 2:1201
  osteoporosis, 3:1663
  sexual dysfunction, 4:2031
  UTIs, 1:283, 284
Women's Antioxidant and Cardiovascular Study, 1:110
Women's formula, for menopause, 3:1476
Women's ginseng. *See* Dong quai
Women's Health Initiative
  heart disease, 2:1017
  HRT, 1:248, 249, 394; 2:1011; 3:1477, 1665–1666
  ovarian cancer, 3:1672
Wood, John, 1:628
Wood betony
  migraine, 3:1500
  retinopathy, 3:1919
  worms, 4:2393
Wood horsetail. *See* Horsetail
Wood pimpernel. *See* Lysimachia
Wood spider. *See* Devil's claw
Woodbine. *See* Honeysuckle
Word discrimination testing, 1:180
Workplace factors. *See* Occupational factors
World Conference on Urine Therapy, 4:2296
World Conferences for Academic Exchange of Medical Qigong, 3:1859, 1861
World Health Organization (WHO)
  acupuncture, 1:17
  AIDS, 1:33
  botanical medicine, 1:316, 320
  calcium/vitamin D recommendations, 3:1663*t*
  DTaP vaccine, 4:2216
  Gerda Alexander Eutony, 3:1526
  herbal medicine, 2:1050
  iodine deficiency, 2:1205
  Kampo medicine, 2:1256
  malaria, 3:1417
  marijuana, 3:1431
  measles, 3:1447
  Mediterranean diet, 3:1453, 1454
  Ménière's disease, 3:1466
  oral rehydration therapy, 2:697
  rabies, 3:1869
  SARS, 3:1772
  schizophrenia, 4:1992
  sciatica, 4:2002
  senna, 4:2019
  sick building syndrome, 4:2058, 2059
  smoking, 4:2091
  spirulina, 4:2122–2123
  stevia, 4:2139
  turmeric, 4:2280
World Hypnosis Organization, 2:1142
World Vegan Day, 4:2319
Worldwide Gourmet (magazine), 3:1811
Worms, 3:1702, 1705; 4:**2391–2395**
  arka for, 1:132
  garlic for, 2:896
  grains-of-paradise for, 2:959
  hibiscus for, 2:1064
  horehound for, 2:1102
  for inflammatory bowel disease, 2:1184
  kava kava for, 2:1260
  lobelia for, 3:1354, 1355
  neem for, 3:1588
  oregano for, 3:1639
  St. John's wort for, 4:2131
  thuja for, 4:2231
  thyme for, 4:2237
  wormwood for, 4:2395
Wormseed, 4:2393
Wormwood, 4:**2395–2397**
  diabetes, 2:689
  malaria, 3:1416
  parasitic infections, 3:1705
  worms, 4:2393, 2395
Wounds, 4:*2397*, **2397–2400**
  activated charcoal for, 1:458
  aloe for, 1:60
  arginine for, 1:131
  arka for, 1:133
  from bites and stings, 1:261–262
  blood poisoning and, 1:295
  brewer's yeast for, 1:335–336
  calendula for, 1:382
  chickweed for, 1:480
  chrysanthemum for, 1:535
  cinnamon for, 1:544
  colostrum for, 1:584
  echinacea for, 2:738–739
  essential oils for, 2:788
  eucalyptus for, 2:793, 794
  gardenia for, 2:894
  garlic for, 2:896
  gentiana for, 2:916
  goldenrod for, 2:947
  gotu kola for, 2:952, 954
  grape skin for, 2:964
  Hepar sulphuris for, 2:1035
  hibiscus for, 2:1064
  homeopathy for, 2:1090
  honey for, 3:1427
  horehound for, 2:1102
  horsetail for, 2:1106, 1107
  Iceland moss for, 2:1155
  juniper for, 2:1249
  lachesis for, 3:1300
  lavender for, 3:1311
  ledum for, 3:1324, 1325
  lemon balm for, 3:1327
  lycopodium for, 3:1380
  lysimachia for, 3:1390, 1391
  magnolia for, 3:1410
  mangosteen for, 3:1425
  manuka honey for, 3:1428
  marsh mallow for, 3:1435
  milk thistle for, 3:1503
  mullein for, 3:1536
  myrrh for, 3:1561
  neem for, 3:1588
  oregano for, 3:1639
  ox-eye daisy for, 1:536
  oxygen therapy for, 3:1679
  plantain for, 3:1764
  pulsatilla for, 3:1852
  quercetin for, 3:1866
  red cedar for, 3:1889
  rosemary for, 3:1951
  safflower for, 4:1965
  sage for, 4:1970
  shepherd's purse for, 4:2044
  St. John's wort for, 4:2131, 2132
  sweet clover for, 4:2175
  tea tree oil for, 4:2198
  tetanus and, 4:2215, 2216
  therapeutic touch for, 4:2223, 2224
  thyme for, 4:2236
  traditional African medicine for, 4:2253
  turmeric for, 1:642
  vitamin E for, 4:2351
  witch hazel for, 4:2388
  yarrow for, 4:2401
  yellow dock for, 4:2406
  yerba santa for, 4:2408
  yucca for, 4:2418
  zinc for, 4:2422
  See also Cuts and scratches; Injuries
Woundwort. *See* Goldenrod
Wrinkled giant hyssop. *See* Agastache
Wrinkled rose. *See* Rose hips
Wrinkles
  BHAs for, 1:231
  grape seed extract for, 2:961
Wristbands, for vomiting, 3:1517; 4:2359
Writing therapy. *See* Journal therapy
Written expression disorders, 3:1321, 1322
Wu Bei San, for peptic ulcers, 4:2286
Wu bing shao. *See* Pinellia
Wu Gong, for whooping cough, 4:2380
Wu Mei Wan, 2:698; 4:2393
Wu Shao San, for peptic ulcers, 4:2286
Wu Shi Cha, for common cold, 1:591

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Wu Wei Xiao Du Yin, for Lyme disease, 3:1386
Wu Wei Zi. *See* Schisandra
Wu zhu yu. *See* Evodia fruit
Wushu (kung fu), 3:1437
Wyethia, for hay fever, 2:999

X

X-rays
fractures, 2:863
herniated disks, 2:1056
holistic dentistry and, 2:1078
hyperparathyroidism, 2:1130
inflammatory bowel disease, 2:1184
jaundice, 2:1234
lung cancer, 3:1369
osteoarthritis, 3:1655
osteoporosis, 3:1664
pancreatitis, 3:1694
pneumonia, 3:1772
scoliosis, 4:2005
See also Lower GI x-ray series; Radiation injuries; Upper GI x-ray series
Xafaxan (rifximin), for diarrhea, 2:698
XanGo (beverage), 3:1425–1426
Xanthine oxidase inhibitors, 2:958
Xanthium, for rhinitis, 3:1929
Xanthones, in mangosteen, 3:1426
Xanthophylls, 1:404
Xenical (orlistat), 3:1351, 1625
Xenotransplant therapy. *See* Cell therapy
Xerophthalmia, night blindness and, 3:1603
Xerostomia. *See* Dry mouth
Xi Lei San, for peptic ulcers, 4:2286
Xiang fu. *See* Cyperus
Xiang Sha Liu Jun Wan, for diarrhea, 2:698
Xiao chai hu tang
fatigue, 2:817
mononucleosis, 3:1515
in traditional Chinese medicine, 1:504, 505
Xiao er tui na, 1:499
Xiao Feng Zhi Yang Chong Ji, for itching, 2:1229
Xiao Ke Wan, for diabetes, 2:689
Xigris (drotrecogin alfa), 1:295
Xin yi hua. *See* Magnolia
Xolair. *See* Omalizumab
Xuan Fu Hua, for pleurisy, 3:1768
Xue Fu Zhu Yu Tang, 1:91; 3:1768

Y

Ya bai shu. *See* Thuja
YAG (yttrium aluminum garnet) laser surgery, 1:418
Yale University, 3:1387, 1669; 4:2093
Yam, wild. *See* Wild yam
Yan Hu Suo. *See* Corydalis
Yang
acupressure, 1:13
acupuncture, 1:17
Chinese food cures, 1:502, 503
eucommia bark, 2:795
macrobiotic diet, 3:1396, 1397
martial arts, 3:1437
qigong, 3:1860
sexual dysfunction, 4:2032
t'ai chi, 4:2191
traditional Chinese medicine, 2:1042, 1043; 4:2256, 2257
Yang Pan-Hou, 4:2192
Yard chemicals, poisoning and, 1:469
Yarrow, 4:**2401–2403,** *2402*
alcoholism, 1:44
angina, 1:91
ankylosing spondylitis, 1:97
chickenpox, 1:478
common cold, 1:591
endometriosis, 2:760
fever, 2:832; 4:1987
heart disease, 2:1018
hemorrhoids, 2:1033
in hydrotherapy, 2:1121
influenza, 2:1188
laryngitis, 3:1309
menstruation disorders, 3:1482
mononucleosis, 3:1515
nosebleeds, 3:1607
ovarian cancer, 3:1671
ovarian cysts, 3:1676
peptic ulcers, 4:2286
sinus infections, 4:2069
Ye jiao teng. *See* Fo ti
Yeast, brewer's. *See* Brewer's yeast
Yeast dermatitis, diaper rash from, 2:694, 695
Yeast hypersensitivity syndrome, acidophilus for, 1:4
Yeast infections, 4:*2403,* **2403–2405**
acidophilus for, 1:3–4
biotin for, 1:253
black cumin seed extract for, 1:273
burdock for, 1:359
cinnamon for, 1:543
echinacea for, 2:739
garlic for, 2:895, 896, 897
glucosamine for, 2:936
grapefruit seed extract for, 2:966
Hepar sulphuris for, 2:1035
homeopathy for, 2:1094
myrrh for, 3:1561
neem for, 3:1588
oregano, 3:1640
pau d'arco for, 3:1720
peppermint for, 3:1731
sepia for, 4:2028
sinus infections and, 4:2068
tea tree oil for, 4:2198
zinc for, 4:2420
The Yeast Syndrome (Trowbridge and Walker), 1:253
Yellow (color)
color therapy, 1:577
emotional properties, 1:184
music therapy, 1:578
Yellow buckeye. *See* Horse chestnut
Yellow cedar. *See* Thuja
Yellow chamomile, 1:454–455
Yellow dock, 4:**2405–2407,** *2406*
anemia, 1:85
fungal infections, 2:877
insulin resistance, 2:1200
irritable bowel syndrome, 2:1220
itching, 2:1229
night blindness, 3:1603
pregnancy, 3:1799
rashes, 3:1882
Yellow Emperor's Classic of Internal Medicine (Chinese text), 1:16; 2:1041; 3:1407
Yellow giant hyssop. *See* Agastache
Yellow ginseng. *See* Blue cohosh
Yellow gowan. *See* Dandelion
Yellow jasmine. *See* Gelsemium
Yellow loosestrife. *See* Lysimachia
Yellow paint root. *See* Goldenseal
Yellow puccoon. *See* Goldenseal
Yellowroot. *See* Coptis
Yerba santa, 4:**2407–2409,** *2408*
Yi jian xi. *See* Andrographis
Yi mu cao. *See* Motherwort
Yi yi ren. *See* Coix
Yi Zhi Huang Ha. *See* Goldenrod
Yin
acupressure, 1:13
acupuncture, 1:17
anemarrhena, 1:80
Chinese food cures, 1:502, 503
eucommia bark, 2:795
macrobiotic diet, 3:1396, 1397
martial arts, 3:1437
qigong, 3:1860
sexual dysfunction, 4:2032
t'ai chi, 4:2191
traditional Chinese medicine, 2:1042, 1043; 4:2256, 2257
Yin chai hu, 1:480
Yin Hua Jie Du Tang, for Lyme disease, 3:1386
Yin Huang Kou Fu Yi, 1:563
Yin Qiao Ji Du Pian, 1:563, 591; 4:2096
Yin Qiao Ji Du Wan, for chickenpox, 1:478

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Yin Yan Huo. *See* Epimedium
Yintang point, 1:15
Ylang-ylang
anxiety, 1:115
aromatherapy uses, 1:139
epilepsy, 2:777
lice infestations, 3:1338
menstruation disorders, 3:1483
panic disorders, 3:1698
post-traumatic stress disorder, 3:1785
stress, 4:2151
Yo-yo dieting
cellulite, 1:438
weight loss, 2:703; 3:1625
Yoga, 4:**2409–2415,** 2410*t*, 2411*t*
anxiety, 1:115
asthma, 1:156–157
bhakti branch, 1:235–237
bone spurs, 1:309
as breath therapy, 1:330, 331
bursitis, 1:365
carpal tunnel syndrome, 1:408
chakra balancing and, 1:452, 453
chronic fatigue syndrome, 1:533
colitis, 1:571
constipation, 1:599
diabetes, 2:689
dizziness, 2:714
dysmenorrhea, 2:729
epilepsy, 2:777
as exercise, 2:804
fatigue, 2:816
fibromyalgia, 2:839
gastritis, 2:903
gastrointestinal gas, 2:899, 899*t*
genital herpes, 2:911
glaucoma, 2:934
headaches, 2:1004, 1005
heart attacks, 2:1012
heart disease, 2:1018
hot flashes, 2:1112
hypercortisolemia, 2:1125
hyperopia, 2:1127
indigestion, 2:1170
infections, 2:1176
irritable bowel syndrome, 2:1220
ischemia, 2:1225
leukemia, 3:1334
low back pain, 3:1366
lung cancer, 3:1372
lymphomas, 3:1420
Ménière's disease, 3:1467
menopause, 3:1476
menstruation disorders, 3:1483
migraine, 3:1500
mononucleosis, 3:1515
as movement therapy, 3:1526
multiple chemical sensitivity, 3:1540
multiple sclerosis, 3:1543
nausea, 3:1583
neck pain, 3:1586
neuralgia, 3:1597
obsessive-compulsive disorder, 3:1629
ovarian cancer, 3:1670
ovarian cysts, 3:1676
pain, 3:1686
panchakarma and, 3:1690
pancreatitis, 3:1695
panic disorders, 3:1698
Parkinson's disease, 3:1708
peripheral neuropathy, 3:1734
phobias, 3:1743
pneumonia, 3:1772
polarity, 3:1774–1775
post-traumatic stress disorder, 3:1785
postpartum depression, 3:1781
pranic healing and, 3:1791, 1792
premenstrual syndrome, 3:1807
prostate enlargement, 3:1831
rheumatoid arthritis, 3:1926, 1927
schizophrenia, 4:1999
sexual dysfunction, 4:2033
shingles, 4:2053
sick building syndrome, 4:2059
sleep disorders, 4:2085, 2086
staphylococcal infections, 4:2136
sties, 4:2141
stress, 4:2151
substance abuse, 4:2161
systemic lupus erythematosus, 4:2188
Tourette syndrome, 4:2249
trichotillomania, 2:984
vegetarianism and, 4:2324
weight loss, 3:1624
wheezing, 4:2372
Yoga Journal, 4:2409
Yoga postures. *See* Physical postures
Yoga Sutras (Patanjali), 1:330; 3:1791; 4:2414
Yohimbe, 2:1164–1165; 3:1564; 4:2033, *2415*, **2415–2417**
Your Own Perfect Medicine (Christy), 4:2296
Yttrium aluminum garnet (YAG) laser surgery, 1:418
Yu jin. *See* Turmeric
Yu Lu San, for Lyme disease, 3:1386
Yu mi xu. *See* Cornsilk
Yu Ping Feng San, for hay fever, 1:55
Yu Quan Wan, for diabetes, 2:689
Yu Shu Dan, for vomiting, 4:2358
Yu xing cao. *See Houttuynia cordata*
Yu zhu. *See* Atractylodes
Yucca, 2:1253; 3:1656; 4:*2417*, **2417–2419**
Yunnan Bai Yao, for wounds, 4:2399
Yuppie flu. *See* Chronic fatigue syndrome

Z

Zaffer. *See* Safflower flower
Zanaflex. *See* Tizanidine
Zanamavir, for influenza, 2:1188, 1189
Zantac (ranitidine), for indigestion, 2:1170
Zarontin (ethosuximide), for epilepsy, 2:778
Ze Xie. *See* Alisma
Zea mays. *See* Cornsilk
Zeaxanthin
cataracts, 1:418
food sources, 1:403*t*
retinopathy, 3:1919
supplements, 1:406
Zelnorm, 1:600
Zen Buddhism, martial arts and, 3:1436
Zetia, high sensitivity C-reactive protein test and, 2:1069
Zeus (mythological figure), 1:148
Zhang San-feng, 4:2191, 2192
Zhi Bai Di Huang Wan, for kidney infections, 2:1274
Zhi Bai Lui Wai Di Huang, for genital herpes, 2:912
Zhi Ke, for pleurisy, 3:1768
Zhi-Mu. *See* Anemarrhena
Zhi Shi. *See* Neroli
Zhi Yang Po Fen, 2:1229; 3:1809, 1882
Zhi Yang Xi Ji, for itching and rashes, 2:1229; 3:1882
Zhi zi. *See* Gardenia
Zhongguo Zhongyao Zazhi (journal), 1:558
Zhou, James, 2:1292
Zhu Ru, for vomiting, 4:2358
Zi Mu. *See* Alfalfa
Zi Su Ye, for worms, 4:2393
Zicam, 2:1046
ZIFT (zygote intrafallopian transfer), 2:1182
Zinc, 4:**2419–2423,** 2420*t*
ADHD, 1:176
anorexia nervosa, 1:100
as antioxidant, 1:111
autism, 1:190
bedsores, 1:211
blood clots, 1:292
boils, 1:303
cervical dysplasia, 1:451; 3:1580
chickenpox, 1:478
childhood nutrition and, 1:493
chronic fatigue syndrome, 1:533
common cold, 1:593
conjunctivitis, 1:594
copper and, 1:605

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

Zinc *(continued)*
cough, 1:618
dementia, 2:665
dermatitis, 2:674
diarrhea, 2:697
dysmenorrhea, 2:729
earaches, 2:737
fever, 2:832
genital herpes, 2:912
glaucoma, 2:933
gonorrhea, 2:950
gum diseases, 2:977
hair loss, 2:984
halitosis, 2:985
hay fever, 1:55
hearing loss, 2:1009
heart attacks, 2:1012
heart disease, 2:1018
heavy metal poisoning, 2:1027
in herbal cold remedies, 2:1046
hyperopia, 2:1127
hypothyroidism, 2:1150
infections, 2:1176
infertility, 2:1180
influenza, 2:1188, 1190
jet lag, 2:1238
juvenile rheumatoid arthritis, 2:1253
kidney infections, 2:1274
lacto-ovo vegetarianism and, 3:1303
lead poisoning, 3:1318
leukemia, 3:1333
lung cancer, 3:1371
Lyme disease, 3:1386
measles, 3:1447
Ménière's disease, 3:1467
myopia, 3:1555
natural hormone replacement therapy and, 3:1573
night blindness, 3:1603
osteoarthritis, 3:1656
ovarian cancer, 3:1670
Parkinson's disease, 3:1708
peptic ulcers, 4:2285
pneumonia, 3:1772
prostate enlargement, 3:1831
radiation injuries, 3:1876
rashes, 3:1882
retinopathy, 3:1919
rheumatoid arthritis, 3:1926
rhinitis, 3:1929
rosacea, 3:1946
seniors, 4:2017
sinus infections, 4:2069
skin cancer, 4:2074
smoking cessation, 4:2093
sneezing, 4:2096
sore throat, 4:2106
in spirulina, 4:2123
strep throat, 4:2148, 2149
systemic lupus erythematosus, 4:2188
tinnitus, 4:2242
toxicity, 1:463
as trace mineral, 1:462
trichomoniasis, 4:2268
tuberculosis, 4:2276
UTIs, 1:285
veganism and, 4:2322
vegetarianism and, 4:2327
in wheat germ, 4:2368
whooping cough, 4:2380
Zinc chloride, in escharotic treatment, 2:782, 783
Zinc deficiency, 4:2421–2422
from EDTA chelation therapy, 1:465
night blindness and, 3:1603
overview, 4:2420
Zinc metallicum (homeopathic remedy), 2:1023
Zinc pyrithione shampoos, 2:661–662
Zingiber officinale. *See* Ginger
Zofran. *See* Ondansetron
Zoledronic acid, for osteoporosis, 3:1666
Zollinger-Ellison syndrome, peptic ulcers and, 4:2283, 2285
Zoloft. *See* Sertraline
Zolotov koren. *See* Rhodiola rosea
Zolpidem, for sleep disorders, 4:2086
The Zone (Sears), 4:2423
The Zone diet, 4:**2423–2425**
Zone therapy, 3:1896, 1897
See also Reflexology
Zovirax. *See* Acyclovir
Zuni people, juniper use, 2:1249
Zuo Jin Wan, for vomiting, 4:2358
Zyban (bupropion), 2:671; 4:2094
Zygote intrafallopian transfer (ZIFT), 2:1182
Zyloprim (allopurinol), 2:958, 1278
Zyvox (linezolid), for pneumonia, 3:1772

144267

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

GURUKUL KANGRI LIBRARY

	Signature	Date
Access on		29/01/09
Class on		29/4/09
Cat on		
Tag etc.	V. Kumar	
Filing		
E.A.R.		
Any others		
Checked		

Recommended By.....डॉ० ईश्वर भारद्वाज

STOCK VERIFY
2020
G.K.V. Library

Entered in Database
Signature with Date
29/01/09

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar

Digitized by Arya Samaj Foundation Chennai and eGangotri

GALE
CENGAGE Learning

Visit Gale online at gale.cengage.com
Visit our corporate website at cengage.com

ISBN-13: 978-1-4144-4876-3
ISBN-10: 1-4144-4876-7
90000
9 781414 448763

CC-0. In Public Domain. Gurukul Kangri Collection, Haridwar